

**University of Manitoba
Department of Earth Sciences**



**Graduate Program Procedures
for
Faculty, Staff, and Students**

Updated: July 1, 2021

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Department of Earth Sciences – Graduate Program Procedures

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1. General Aspects

1.1 Purpose of this Document

This document outlines the operating procedures followed in the Department of Earth Sciences for the administration of the graduate programs. It is intended to complement the formal regulations including those of the Faculty of Graduate Studies (FGS) and those in the Department of Earth Sciences Supplemental Regulations. The list of FGS and Supplemental Regulations is maintained at: http://umanitoba.ca/faculties/graduate_studies/admin/supplemental_regulations.html. In the event of a conflict between the regulations, the on-line Supplemental Regulations take precedence.

1.2 Degree Programs

The degrees offered by the Department of Earth Sciences are:

- M.Sc. in Geological Sciences;
- Ph.D. in Geological Sciences.

The department supports students in the Ph.D. Individual Interdisciplinary Program (IIP). The regulations for this program are at:

http://umanitoba.ca/faculties/graduate_studies/admissions/programs/doctoral/529.html

The degree parchments for the M.Sc. and Ph.D. degrees list the degrees received as:

- M.Sc. in Geological Sciences;
- Ph.D. in Geological Sciences.

There is ongoing discussion regarding including the unit name.

1.3 Expected Program Duration

Students are expected to complete their graduate program in two years (full time) for an M.Sc. degree and four years (full time) for a Ph.D. degree (beyond the B.Sc. Honours degree). Under FGS regulations, the maximum time allowed for the completion of the Master's degree is four years (five years for those who started before 1 September 2013) and the maximum time allowed for completion of the Ph.D. degree is six years following initial registration in the Ph.D. program (seven years for those who initially registered before 1 September 2013). For those students who transfer from the Master's to the Ph.D., years spent in the Master's program are counted as years in the Ph.D. program. Recommendations for extensions of time to complete the degree will be considered on an individual basis and must be submitted to the FGS at least three months (but not more than four months) prior to expiration of the respective maximum time limit.

Students not working on their studies on a full-time basis should consider transfer to a part-time status (see Section 1.4.1 of the University of Manitoba Graduate Academic Calendar). Student status should be determined by the student and advisor/co-advisor, and changes must be requested on the *Part-Time Status Form* (http://umanitoba.ca/faculties/graduate_studies/forms/index.html). The form must be approved by the Department Head and submitted to the FGS. Time spent in part-time status will extend the deadlines for program completion. Retroactive changes in status are not permitted.

2. Individual Responsibilities and Committees

2.1 Graduate Chair

The administration of the graduate programs in the Department of Earth Sciences is done in significant part by a Graduate Chair. The Graduate Chair is appointed by the Head and generally serves for a term of three to five years, which is renewable. If the Graduate Chair is on research leave, the Head may appoint an Acting Graduate Chair for a six-month or one-year period. The duties of the Graduate Chair are defined in the FGS Regulations, the department's Supplemental Regulations and in this document.

2.2 Responsibilities

The basic responsibilities of the Head, Graduate Chair, advisor/co-advisor, Advisory Committee, and graduate student are defined in Appendix 1. Responsibilities of advisors and students are also covered in part in the FGS Advisor-Student Guidelines. The Graduate Program Coordinator for the Clayton H. Riddell Faculty of Environment, Earth, and Resources and the department's Administrative Assistant provide assistance to the Head, Graduate Chair, and advisors in administering the graduate program (refer to Appendix 1).

2.3 Graduate Committees

The structure of several of the main graduate committees is defined in the department's Supplemental Regulations. Additional committees are defined in this document.

1. The Department of Earth Sciences **Graduate Studies Committee (GSC)** comprises three faculty members (appointed by the Head for a 3- to 5-year term, which is renewable) and is chaired by the Graduate Chair.
2. The **Graduate Admissions Committee** consists of two members from the GSC (appointed by the Head) plus the Graduate Chair and is responsible for graduate student admissions.
3. The **Graduate Affairs Committee** consists of the members of the GSC and appointed graduate student representatives and is responsible for considering other aspects related to graduate students.
4. The **Graduate Curriculum Committee** is formed as needed with members appointed by the Head or elected by either Departmental Council in the case of faculty members or the graduate student body in the case of the graduate student representatives.
5. Appeals of decisions by the Department of Earth Sciences concerning graduate students in academic matters are heard by the Department of Earth Sciences **Graduate Appeals Committee**. This panel consists of the Department Head as Chair, the Graduate Chair, one other member designated by the Head, and one alternate should one of the above be responsible for the original decision/recommendation.
6. Each student in the M.Sc. and Ph.D. programs will have an individual **Advisory Committee** chaired by the advisor/co-advisor.

3. Admission

3.1 General Admission Requirements

Admission requirements are fully specified in the FGS Regulations and in the Department of Earth Sciences Supplemental Regulations. Some of the pertinent information and regulations are as follows:

- a) Applicants must select a department when applying to the FGS. Therefore, it is important to clarify the criteria for selecting Earth Sciences. The primary reason for selecting this department is that it will lead to a degree under the Earth Sciences program. The choice of this program implies that the research will be in the Earth sciences, the majority of the required courses taken by the student should normally be from the Department of Earth Sciences (see Sections 3.1c and 3.1d), and the program will be administered under the Supplemental Regulations of the Department of Earth Sciences. In this context “*geological sciences*” encompasses the broad range of research areas and courses offered by the faculty members in the Department of Earth Sciences.

Except for the program-related reasons noted above, a student would choose the Department of Earth Sciences if their preferred advisor has their primary affiliation with this department, even if the faculty member has a secondary affiliation with another unit. If an applicant will have co-advisors from the Department of Earth Sciences and another unit, the student would generally specify the unit of their primary advisor if that person is defined (e.g., the advisor most closely directing the project or the principal investigator of the research grant from which the main research and stipend funding will come).

- b) **Pre-Master’s.** Applicants to the M.Sc. program whose academic standing qualifies them for graduate work, but whose previous education did not include topics essential to the area of research they wish to pursue, may be offered the opportunity to remedy these deficiencies during a 1-year Pre-Master’s program of study. For students admitted to the Pre-Master’s program, the course program is set by the Graduate Chair, in consultation with the student’s likely advisor. The Pre-Master’s program will normally include a minimum of 18 credit hours. Applications for admission are reviewed and approved by the Department of Earth Sciences Graduate Admissions Committee. Two letters of recommendation are required for an application to the Pre-Master’s program.
- c) **M.Sc.** The normal entry requirement is the equivalent of an Honours B.Sc. degree in Geological Sciences from the University of Manitoba. Students with honours degrees in related disciplines (such as Geography, Soil Science, Biology, Chemistry, Environmental Science, Physics, Mathematics, Engineering Physics, and Geological, Civil and Electrical Engineering) may be accepted by the Graduate Admissions Committee providing their planned degree program involves studies in the Earth sciences. The majority of the required courses taken by the student should normally be from the Department of Earth Sciences. The research should also be in the Earth sciences. Three letters of recommendation are required for an application to the M.Sc. program.
- d) **Ph.D.** The normal entry requirement is the equivalent of an M.Sc. in Geological Sciences. Students with M.Sc. degrees in related fields may be accepted by the Graduate Admissions Committee providing their planned degree program involves studies in the geological sciences. The majority of the required courses taken by the student should normally be from the Department of Earth Sciences. The research should also be in the geological sciences. Direct entry into the Ph.D. program from an honours Bachelor’s degree is permitted only for outstanding students (GPA well above 3.0 in the last two full years of undergraduate study). This route is at the discretion of the Graduate Admissions Committee and is intended only for those students that the committee considers adequately prepared for immediate Ph.D.-level studies. Three letters of recommendation are required for an application to the Ph.D. program.
- e) **Transfer to Ph.D.** Where a student **with a Bachelor’s degree or equivalent** is initially admitted and registered in a Master’s program, that student may be transferred to the Ph.D. program within the same department upon recommendation by the Department Head to the FGS. The recommendation should be made within 16 months of the student’s commencement of the Master’s program. The following are required when making the request: the online Application

for Admission indicating a request for transfer, and a letter of recommendation from the Department Head.

Where a student with a Master's degree or equivalent is initially admitted and registered in a Master's program, that student may be transferred to the Ph.D. program within the same unit on the recommendation of the student's advisor/co-advisor and Department Head, provided that the follow-up transfer recommendation occurs within 12 months of the initial registration in the Master's program.

3.2 English Language and GRE Requirements

Admission requires an English Language Proficiency Test score for all applicants who have not received a high school or university degree from Canada, United States or certain other countries (see the FGS documentation for the list of countries exempted from submitting an English language score).

Submission of Graduate Record Examination (GRE) scores is optional for applications to the Department of Earth Sciences.

3.3 Application Deadlines

The Department of Earth Sciences allows students to begin the program on September 1, January 1, or May 1. Canadian/U.S. students should submit their applications with complete supporting documentation no less than three (3) months before the intended start date. International students should submit their applications with complete supporting documentation no less than seven (7) months before the intended start date.

3.4 Application Procedure

Applications are currently submitted electronically through the FGS Apply Online system. Within the Department of Earth Sciences, the processing of the applications is coordinated by the Graduate Program Coordinator for the Clayton H. Riddell Faculty of Environment, Earth, and Resources, and the department's Graduate Chair. The **Graduate Admissions Committee** is responsible for the assessment of the applications.

After an application is received and has undergone initial processing by the Graduate Program Coordinator, it is received by the Graduate Chair and circulated through the members of the Graduate Admissions Committee and proposed or possible advisors for input. The committee makes a final decision regarding admission based on this input. The Head's signature on the final committee recommendation denotes his/her confirmation of due process in this evaluation. For applications recommended for acceptance, the Administrative Assistant will prepare a letter of conditional offer from the department to send to the applicant. All applications are returned to the FGS via the Graduate Program Coordinator.

4. Financial Support

4.1 General Requirements and Minimum Levels

The Department of Earth Sciences attempts to maintain minimum levels of support (determined approximately annually) for all its graduate students from sources including fellowships, research grants, and student Teaching Assistantships. Financial support cannot, however, be guaranteed and support levels may differ from student to student. Each student accepted into the graduate program is informed of the expected level of support and duration at the time the offer is made.

The following are normal sources of funding available to a graduate student: a research grant of the advisor/co-advisor, scholarships or bursaries awarded to the student, Teaching Assistantships (on

application for available positions), other sources such as contracts or job arrangements with either the advisor/co-advisor or external organizations. **The Department of Earth Sciences is unable to provide funding for research costs or student stipends. This limitation applies even in emergency situations when an advisor/co-advisor's funding unexpectedly declines or terminates.** However, the department will assist an advisor/co-advisor in seeking emergency funds from other sources (e.g., with the Graduate Chair and/or Head writing letters of support in appropriate situations).

4.2 Graduate Stipends

Graduate stipends are intended to support the student during their graduate research. They are not to be used as payment for work done for an advisor/co-advisor outside the context of the student's research project. They are not intended to pay research costs.

The present expected minimum annual stipend in the Department of Earth Sciences for the first two years of an M.Sc. program is \$12,000 and for the first three years of a Ph.D. program is \$15,000, although the department does not have regulations enforcing this minimum. There is no maximum defined for the stipend. An advisor/co-advisor may choose to extend the stipend beyond the normal two-year time-frame of an M.Sc. degree or three-year time-frame of a Ph.D. degree but has no obligation to do so.

The stipend is usually defined at a level that is mutually agreeable to both the student and advisor/co-advisor. The stipend for the student's first year is included in the letter of offer to the student. The minimum stipend for subsequent years may be listed in this letter and should be known to the student before they accept the offer of entry into the program. The level of a stipend for the second and later years of a program is subject to satisfactory performance by the student and to the continued availability of research funding to the advisor/co-advisor. Unless otherwise arranged, it is also subject to the student working full-time on their research project: the stipend may be suspended if, for example, a student departs to take up a summer job. Payment of the stipend is contingent on the student's full-time attendance and residence in the department and it may be suspended if the student does not fulfill this requirement.

At the University of Manitoba, the level of the graduate stipend is defined independently from income received by the student from Teaching Assistantships. The stipend is meant to be a minimum level of support.

See Section 4.6 Communication of Funding Arrangements and Expectations. It is important for the advisor/co-advisor and student to have a clear understanding of the stipend and what it is meant to cover.

4.3 Scholarships and Bursaries

A graduate student may apply for, and be awarded, major scholarships such as an NSERC Postgraduate Scholarship, a University of Manitoba Graduate Fellowship, or a Province of Manitoba Graduate Fellowship. In general, a student's stipend will be adjusted if they receive such a scholarship. Depending on the scholarship, the level of their previous stipend, and the advisor/co-advisor's research budget, the student may receive just the scholarship, or they may receive the scholarship plus a top-up stipend. Some scholarships, such as from NSERC, limit the amount of additional funding that can be received. The combined funding received from scholarships and stipends should not be less than the recommended departmental minimum and should not decrease as a result of a student receiving a scholarship. Bursaries are awarded to students who are in a position of financial difficulty, so there should usually be no adjustment of a stipend to a student awarded a bursary. Stipends are usually not adjusted when students receive awards (cf. scholarships) based on their academic performance.

4.4 Teaching Assistantships

Teaching Assistantships are regarded by the University of Manitoba and the Department of Earth Sciences as an integral part of the academic experience of students and form a contribution to student's graduate education.

New and continuing students may apply for CUPE 3909 Teaching Assistant or Grader/Marker positions as they become available. The process is competitive and there is no guarantee that positions will be available, or if available, that any particular student will receive a specific position.

Under the terms of the collective agreement, the department can neither prevent a student from applying for a position nor can the department withhold an offer of employment if the student is the best qualified for the position. If the conditions of a student's research project or research funding preclude a student holding a Teaching Assistant position, then the advisor/co-advisor should communicate directly with the student regarding the situation (e.g., if a research project involves field work that will preclude a student taking up a Teaching Assistantship for a particular term). In some cases, it may be appropriate for these limitations to be included in the letter of offer. Students must conform to other pertinent university regulations while working as Teaching Assistants (e.g., meeting requirements of adequate progress as defined by the FGS procedures).

4.5 Other Forms of Funding

Some students receive funding from other sources of employment including contracts, research assistant appointments with their advisor/co-advisor, and summer or part-time jobs with external organizations. Any work that precludes full-time progress on the student's graduate studies should be identified to their advisor/co-advisor and the department. The student's stipend may be adjusted accordingly.

4.6 Communication of Funding Arrangements and Expectations

It is critical for the advisor/co-advisor and student to be clear on financial arrangements for the student support prior to the student accepting entry into the program. The following points should be discussed and/or documented:

1. Level of stipend in the first year.
2. Minimum level of stipend in subsequent years, and the minimum number of years of stipend support subject to adequate progress.
3. An indication of any possibility that the advisor/co-advisor may not hold research funding for the duration of the student's degree.
4. Tuition Fees. Students are responsible for paying their own tuition fees. However, the advisor/co-advisor may decide to provide an additional amount of stipend support in consideration of this expense for the student. This should be discussed between advisor/co-advisor and student.
5. Whether the student is expected to pay for tuition from their stipend.
6. Whether the student will be expected to pay for research-related costs such as laptop computer or conference attendance from their own funds.
7. How the stipend will be adjusted if the student receives a major scholarship.
8. Whether the research project or funding will restrict the student's ability to accept Teaching Assistantships.

5. Advisory Committees

Students will be admitted only with an identified/assigned advisor. In special circumstances, upon approval of the Department Head, an advisor and co-advisor may advise a student. The co-advisor does not need to be a member of the Department of Earth Sciences but must be a member of the FGS. When an advisor and co-advisor are assigned, together they shall fulfill the role of the advisor (that is, neither shall fulfill any other advisory or examining committee membership requirements for that student). One advisor must be identified as the primary advisor; however, both co-advisors' signatures are required on all documents where the advisor's signature is required.

Adjunct faculty members may only co-supervise M.Sc. or Ph.D. students with departmental faculty members.

The structure and duties of M.Sc. and Ph.D. advisory committees are defined in the FGS Regulations and Supplemental Regulations.

5.1 M.Sc. Advisory Committees

FGS regulations indicate that Master's Advisory Committees are selected by the advisor/co-advisor in consultation with the student. The Advisory Committee must consist of a minimum of three members (including the advisor/co-advisor), at least two of whom must be members of the FGS. All members must be deemed qualified by the Head. The advisor/co-advisor is the Chair of the Advisory Committee.

As specified in the FGS Regulations for Master's degrees, the advisor/co-advisor will advise the student on a program of study, direct research, and supervise the thesis. The function of the M.Sc. Advisory Committee is to provide guidance on (not to direct) the research. The minimum duty of the committee is to meet with the student formally at least once per year, ahead of the submission of the Progress Report to the FGS.

5.2 Ph.D. Advisory Committees

FGS regulations indicate that the Head of the major department is responsible for the establishment of an Advisory Committee for each Ph.D. student and that the advisor/co-advisor select the committee members in consultation with the student. The Advisory Committee must consist of a minimum of three members, all of whom must be members of the FGS. Committees may include one non-voting guest member who has expertise in a related discipline but is not a member of the FGS. The advisor/co-advisor is the Chair of the Advisory Committee. The membership of the committee, including the advisor/co-advisor, as well as any changes to it, must be approved by the FGS.

Responsibilities of the committee are to approve the program of study and thesis proposal and to exercise general supervision over the student's work throughout the Ph.D. program. The committee should meet with the student periodically (and must meet with the student at least once a year) to review the student's progress and to report this progress to the FGS (through the Head of the major department). If there is evidence of unsatisfactory performance, the student may be required to withdraw.

Department Supplemental Regulations indicate that the Advisory Committee must be appointed prior to the student's arrival. Normally, within the first two weeks of the student's commencement of the program, and prior to the course change deadline, if the student arrives at the start of a term, the Advisory Committee will meet with the student and discuss the student's background and proposed research area, in order to formulate appropriate course work for the student's program. A student's program will normally be developed in conjunction with their advisor/co-advisor and Advisory Committee, with review by the Graduate Chair.

6. Program Requirements

6.1 General Requirements

The general program requirements for the different degree programs are defined in the FGS Regulations and Supplemental Regulations.

All students must register for and complete GRAD 7500 Academic Integrity Tutorial (0 credit hours) within their first term of initial registration.

Bona Fide Academic Requirements (BFAR) represent the core academic requirements a graduate student must acquire in order to gain and demonstrate acquisition of essential knowledge and skills. A student must meet both the FGS BFARs

(<http://crscalprod.ad.umanitoba.ca/Catalog/ViewCatalog.aspx?pageid=viewcatalog&catalogid=341&chapterid=4090&topicgroupid=21957&loadusercredits=False>) and program-specific BFARs for Earth Sciences (currently in the approval process).

6.2 M.Sc. Course Requirements

The formal requirements for the M.Sc. degree are a thesis plus a minimum of 9 credit hours which includes:

- GEOL 7200 Earth Systems of Central Canada (3); refer to Section 6.5
- GEOL 7760 Seminar in Geological Sciences (3); refer to Section 6.4
- a minimum of 3 additional credit hours of approved courses at the 7000 level. Depending on the student's background and needs, the Advisory Committee may assign additional courses at the 3000 level or above.

6.3 Ph.D. Course Requirements

The formal requirements for the Ph.D. degree, where admission to the Ph.D. is directly from a Master's degree, are a thesis plus a minimum of 15 credit hours which includes:

- GEOL 7200 Earth Systems of Central Canada (3); refer to Section 6.5. For Ph.D. students who have already received credit for GEOL 7200 as part of the M.Sc. degree, another 7000-level course will be taken in place of the Ph.D. requirement of GEOL 7200
- GEOL 7760 Seminar in Geological Sciences (3); refer to Section 6.4
- a minimum of 9 additional credit hours (minimum 6 at the 7000 level, maximum 3 at the 3000 or 4000 level)

Where admission to the Ph.D. is directly from an Honours Bachelor degree or equivalent, a thesis plus a minimum of 21 credit hours, as follows, are required.

- GEOL 7200 Earth Systems of Central Canada (3)
- GEOL 7760 Seminar in Geological Sciences (3); refer to Section 6.4
- a minimum of 15 additional credit hours (minimum 12 at the 7000 level, maximum 3 at the 3000 or 4000 level)

6.4 GEOL 7760 Seminar in Geological Sciences

The objectives of the Seminar in Geological Sciences are:

1. Providing an opportunity for graduate students to present their scientific research to their fellow students, department members, and the broader community and to receive feedback on their work;
2. Providing graduate students with experience in the presentation of their scientific research, including preparing for specialist conferences and for presentations to broader audiences;
3. Ensuring graduate students broaden their geoscientific knowledge beyond their own study area through attending presentations on a broad range of geoscience topics; and

4. Fostering academic and scientific community within the Department of Earth Sciences. Students will enrol in GEOL 7760 in each Fall Term and Winter Term of their program. The requirements are defined for students enrolled in the course by the corresponding course outline.

Under the Department of Earth Sciences Supplemental Regulations all resident graduate students must continue to participate in the Seminar in Geological Sciences. The requirements for all resident graduate students are straightforward:

1. Present one seminar in each academic year of the student's program;
2. Attend and participate in seminars by other speakers.

Procedurally, failure of students to fulfill these requirements can be addressed through communication between the GEOL 7760 instructor and the advisor/co-advisor, with the deficiencies noted on the Progress Report. If this arrangement fails to resolve the problem, the GEOL 7760 instructor should inform the Graduate Chair and/or Head. Note that a resident graduate student is defined as a student with an office space or alternate research space assigned on the University of Manitoba campus. Non-resident students are encouraged, but not required by the department, to also participate in the Seminar in Geological Sciences series when it is practical for them to do so.

6.5 GEOL 7200 Earth Systems of Central Canada

The course goals are to broaden the geological, geophysical and hydrological knowledge base of all M.Sc. and Ph.D. students in the Department of Earth Sciences by studying the geological history and diverse natural resources of Manitoba and adjacent regions. The course will be delivered in modules, following a lecture and seminar format and will be team-taught by faculty members in the department. A faculty member will be designated as the course coordinator to oversee delivery of the course. These teaching assignments will be made by the Head.

For Ph.D. students, who did their M.Sc. degree in the department and received credit for GEOL 7200 as part of the M.Sc. degree, another 7000-level course will be taken in place of the Ph.D. requirement of GEOL 7200.

6.6 External Courses

Students may include courses from outside the University of Manitoba for credit in their programs with appropriate approval. This approval should be sought before the course is taken. The process includes arranging a letter of permission through the University of Manitoba Registrar's Office. In certain cases, such as under the Western Dean's Agreement

(http://umanitoba.ca/student/records/leave_return/western_deans_agreement.html),

the student may be able to take courses at other institutions without additional fee payments. Both student and advisor/co-advisor should be aware that if there is no agreement in place to cover tuition at another university, the student will be responsible for tuition fees in excess of what he/she would normally pay at the University of Manitoba, where tuition is assessed at a flat rate (cf. on a per course basis).

At times, it may be desirable to have a graduate student take a specialized course that involves both an external component and an internal component (e.g., if the student takes a short-course at a conference in association with a reading course at University of Manitoba). Such situations should be discussed with the Graduate Chair and/or Head. It is essential for the University of Manitoba instructor involved to be able to take full responsibility for the overall content of the course and for evaluation of the student in the course. This is critical for handling issues such as student appeals of final grades and term work grades.

6.7 Incomplete and Continuing Courses

It is desirable for a graduate course to finish in the term in which it is offered, and this situation should always be the target result at the start of the course. However, it is acknowledged that in a number

of situations the course must continue beyond the deadline for submission of grades. The following approaches should be followed:

- a) If the course is incomplete because a student missed a final examination, the instructor will submit a grade based on the cumulative work (i.e., including a mark of zero for the final exam in the normal grading assessment scheme) with an NP comment. Should there be extenuating circumstances (medical or compassionate), the student may request a deferred exam through the FGS.
- b) If the course is incomplete because a student has failed to complete term work in an appropriate timely manner (e.g., relative to other students) and has appropriate justification (e.g., medical circumstances) the instructor will submit the appropriate paperwork for an Incomplete grade, and submit a grade based on the cumulative work (i.e., including a mark of zero for the incomplete term-work in the normal grading assessment scheme) with an Incomplete comment. The instructor should not enter an Incomplete grade if the course is formally continuing to the next term.
- c) If the course is continuing for a short time (a maximum of a few weeks) after the mark submission deadline, a grade of IP (in progress) will be automatically entered if no grades are filed. Final grades can then be submitted using a spreadsheet submission to the Registrar's Office. The instructor should not use an Incomplete grade if the course is formally continuing to the next term.
- d) If the course is continuing on into the subsequent term because of circumstances that can be attributed mainly to the course itself (e.g., need for additional work, field work, etc.) a grade of CO can be used. When a student has been assigned a grade of CO, the student must re-register for that course in the subsequent term. The final grade will be assigned in the term in which the student completes work in the course.

In all cases the grade submission process includes approval by the Head.

6.8 Course Load

Graduate courses typically involve a greater time-commitment than undergraduate courses (e.g., associated with a larger volume of reading and/or a more detailed research project). In general, students will therefore take a maximum of two graduate courses per term. In exceptional circumstances they may take three courses, but this situation should follow a discussion with the Graduate Chair to establish that the student's course results and research progress will not be adversely affected. The FGS and the department will not generally approve a load of more than three graduate courses in a term.

6.9 Selection of Courses and Course Changes

Graduate courses are intended to provide a graduate student with both breadth and depth in their program. While courses may form a complement to the thesis research (e.g., a reading course in an area related to the research, or a course in which one component is an analysis that can be used in the thesis), they should not focus only on thesis research.

For M.Sc. students, the advisor/co-advisor advises the student on a program of study, directs research, and supervises the thesis work. In general, the courses to be included in the program are selected based on input from both the student and advisor/co-advisor. For Ph.D. students, the definition of the courses to be taken is included as part of the **Program of Study**. The program of study and any changes thereto must be approved by the student's advisor/co-advisor, the Advisory Committee, and the Head of the major department. In general, the student is provided the opportunity for some input into the selection of courses. Under the department's Supplemental Regulations, the proposed programs are normally reviewed by the Graduate Chair.

Under FGS Regulations, students are not permitted to change their program of study, including withdrawal from individual courses, without the approval of their advisor/co-advisor and/or Advisory Committee and the Department Head. Withdrawal from courses or changes of course category without such approval will result in the student being required to withdraw from the FGS.

6.10 Advisor-Student Guidelines

The *Advisor-Student Guidelines* form must be completed prior to the commencement of any research and no later than the submission of the first Progress Report. The process should be initiated by the advisor/co-advisor. The advisor/co-advisor must provide the Graduate Chair with a paper copy, which will be placed in the student's personal file. The guidelines may be revisited at any stage of the student's graduate program to accommodate changes in the advisor-student relationship.

6.11 Meetings and Progress Reports

It is the responsibility of the advisor/co-advisor to initiate a minimum of one annual progress report to the FGS on the *Progress Report Form*. Students who fail to maintain satisfactory performance may be required to withdraw on the recommendation by the Department Head to the Dean of the FGS. Two consecutive "in need of improvements" normally requires the student to withdraw.

Under the Department of Earth Sciences Supplemental Regulations, the minimum duty of the committee is to meet with the student formally at least once per year, ahead of the submission of the Progress Report to the FGS. Under FGS Regulations, the Ph.D. Advisory Committee should meet with the student periodically and must meet with the student at least once a year to review the student's progress and to report this progress to the FGS (through the Head of the major department).

As noted above in Section 5.2 for Ph.D. students, normally, within the first two weeks of the student's commencement of the program, and prior to the course change deadline, if the student arrives at the start of a term, the Advisory Committee will meet with the student and discuss the student's background and proposed research area, in order to formulate appropriate course work for the student's program. **The meeting must be conducted in a timely manner.**

Under the Department of Earth Sciences Supplemental Regulations, each student, including those registered as part-time students, must provide an **annual summary of progress** (e.g., proposal, new results, timetable updates, etc.) to the Head on or before February 1. These progress reports are normally about 1-2 pages long and are in addition to progress reports required by the FGS or presentations required by the student's advisor/co-advisor or Advisory Committee.

7. Thesis Proposals

The thesis proposal requirements for the different degree programs are defined in the FGS Regulations and Supplemental Regulations. It is essential that the evaluation of the thesis proposal is a careful, fair and defensible process. One of the Graduate Chair's most important roles in chairing the evaluation of the proposal is to ensure that this is the case. For example, the Graduate Chair ensures that there is equity in the evaluation of proposals across the department. It is recognized that the consequences of a student failing the proposal are very significant to both the student and advisor/co-advisor.

7.1 M.Sc. Thesis Proposals

Under the Department of Earth Sciences Supplemental Regulations, the M.Sc. thesis proposal must normally be submitted within **8 months** of the student's commencement date in the program. It must demonstrate the student's understanding of the research area and define the research objective including demonstrating that it is a distinct contribution to the field of study. The proposal must include

an introduction with citation of relevant literature, the thesis research objectives, the proposed methodology including a timetable, the anticipated significance of the research, and references. The length of the proposal is to be between 5 and 10 pages including figures and references (12 point, single spaced, 2 cm margins). A proposed budget must be appended to the thesis proposal.

The evaluation of the proposal is conducted by the Advisory Committee chaired by the Graduate Chair. All decisions of the committee must be unanimous. The committee will define the proposal as being:

(i) Approved.

(ii) Not approved. In this case the proposal must be revised to meet the requirements of the committee and resubmitted within a 3 month period. If the proposal is still regarded as unacceptable, the student will be required to withdraw from the program.

The procedure for the evaluation of the proposal is as follows:

1. Introduction.
2. Short presentation (no longer than 20 minutes) by student on his/her proposal. This will help focus the discussion, may allow the student to show additional figures not in the proposal, and will allow the student to provide any updates of work since submission of the proposal. However, the evaluation is of the written proposal.
3. Questions on the proposal.
4. Evaluation of the proposal with student absent.
5. Discussion of the outcome and proposal with student.
6. Completion of FGS form if proposal is approved.

7.2 Ph.D. Thesis Proposal

The Supplemental Regulations define the following procedures for the Ph.D. thesis proposal:

- The purpose of the thesis proposal is to demonstrate the student's understanding of the research area and to define the research objective including demonstrating that it is a distinct contribution to the field of study.
- Timing: The thesis proposal must normally be completed within **12 months** of the student's commencement date.
- Examining Committee: The evaluation of the thesis proposal will be conducted by the Advisory Committee chaired by the Graduate Chair. All decisions of the committee must be unanimous.
- Format of the Proposal: The proposal must include an introduction with citation of relevant literature, the thesis research objectives, the proposed methodology including a timetable, the anticipated significance of the research, and references. The length of the proposal must be between 10 and 20 pages including figures and references (12 point, single spaced, 2 cm margins). A proposed budget must be appended to the thesis proposal.
- Examination of the Proposal: The Advisory Committee and Graduate Chair will meet with the student present. The student will give a 20 minute oral presentation of the proposal to the committee and then answer questions from the committee required to clarify points related to the proposal. Following these questions and withdrawal of the student from the meeting, the committee will evaluate the proposal.
- Outcome: The committee will define the proposal as being:
 - i. Approved. In this case the FGS form will be completed.
 - ii. Conditionally approved. In this case the proposal must be revised to meet the requirements of the committee and resubmitted within a 3 month period. The committee may appoint

the advisor/co-advisor and/or Graduate Chair as being responsible for ensuring the revisions are made adequately. If the committee considers that the revised proposal is unacceptable, it will be treated as a failed proposal in accord with point iii.

- iii. Not approved. The proposal must be reformulated and rewritten and the evaluation process repeated within a 3 month period. If the proposal is still regarded as unacceptable, the student will be required to withdraw from the program.

7.3 Additional Procedures for Submitting and Evaluating M.Sc. and Ph.D. Thesis Proposals

- It is essential that there is full documentation in place to support the decisions that are made in the evaluation of thesis proposals. Such documentation must be available should the student appeal a negative decision. The Graduate Chair and advisor/co-advisor must ensure that all documentation related to the thesis proposal is retained until the evaluation is completely finalized and the appeal period has passed.
- The written proposal is prepared under the general guidance of the advisor/co-advisor with possible additional guidance from members of the Advisory Committee.
- When complete and ready for submission, the thesis proposal should be submitted by the student to the Graduate Chair for a brief overview. It is then distributed by the Graduate Chair to the committee members, along with a memorandum outlining the required evaluation procedure. The Graduate Chair in association with the advisor/co-advisor convenes a general meeting of the Advisory Committee to conduct the evaluation of the proposal. This meeting should normally take place within three weeks of submission of the proposal.
- The written proposal is prepared under the general guidance of the advisor/co-advisor and is to be reviewed by *each member of the Advisory Committee*.
- The criteria for evaluation are that the proposal must demonstrate the student's understanding of the research area, and define the research objective including demonstrating that it is a distinct contribution to the field of study. In addition, the proposal must contain the information specified in the Supplemental Regulations and conform reasonably to the formatting specified in these regulations (see Sections 7.1 and 7.2).
- Following the approval of the proposal, the appropriate FGS form should be prepared, signed by the Head, and submitted to the FGS via the Graduate Program Coordinator.
- In the event of a conditional approval or non-approval of a proposal it is essential that the committee provide the student with a written explanation of the general reasons for the failure in light of the examination criteria. This explanation should provide appropriately explicit rationale (e.g., explaining why the research objective was inadequately defined, why the proposal failed to demonstrate the student's understanding of the research area, how the proposal failed to include an adequate literature review, etc.).
- For cases in which the regulations permit a re-submission, the student should also be provided with a written description of the type and magnitude of changes required to bring the proposal up to an appropriate standard.
- The preparation of a thesis proposal, or a component of a proposal such as the literature review, may form part of a graduate course. However, in this case the evaluation of the proposal must still adhere to the regulations and procedures described above. The evaluation of the proposal must be independent of the evaluation of the piece of work as a component of the graduate course.
- The Graduate Chair must be provided a copy of the final, revised and accepted thesis proposal.

8. Ph.D. Candidacy Examination

8.1 General Regulations

As noted above for the thesis proposal, it is essential that the evaluation of the Candidacy Examination is a fair and defensible process. One of the Graduate Chair's most important roles in chairing the Candidacy Examination is to ensure that this is the case. For example, the Graduate Chair ensures that there is equity in the definition of the subject areas and in the level of questions asked across the department. It is recognized that the consequences of a student failing the Candidacy Examination are very significant to both the student and advisor/co-advisor.

The requirements for the Ph.D. Candidacy Examination are defined in the FGS Regulations and Supplemental Regulations and include:

- Purpose: The purpose of the Candidacy Examination is as specified in the FGS Regulations, and is to ensure the student has both the depth and breadth of knowledge required for the completion of the Ph.D. program.
- Timing: The Candidacy Examination will normally be completed within 24 months of the student's commencement of the program. The student will be advised on the topics to be included in the examination immediately following the completion of the thesis proposal.
- Candidacy Examining Committee: The examination will be evaluated by a committee chaired by the Graduate Chair (or designate), and consisting of the Ph.D. Advisory Committee and the Graduate Chair (or designate). The Graduate Chair (or designate) must not be a member of the Advisory Committee.
- Format of the Examination: The examination will be conducted over the course of one day. It will consist of a written examination of three hours duration in the morning on topics in the area of the research program, a break of two hours, and an oral examination of two hours duration in the afternoon on topics defining the breadth of the student's knowledge in the geological sciences.
- The examination on the area of the research program will consist of questions in two discipline areas of the student's research and be at the level of Ph.D. research. The examination of the student's breadth of knowledge will consist of questions in three subject areas peripheral to, but relevant to, the research area and be at the senior undergraduate level. The subject areas for the examinations will be defined by the Advisory Committee immediately following the thesis proposal and reviewed by the Graduate Chair. The questions for the written examination are set by the Advisory Committee and reviewed by the Graduate Chair.
- Outcome: A pass in the Candidacy Examination is defined as a pass of both the examination in the area of the research program and of the examination on the student's breadth of knowledge. A pass decision of the examiners must be unanimous. Students must be provided with feedback on their performance and access to the reasons for the pass/fail.
- A failure of either the research program or breadth-of-knowledge component of the examination will require the full examination process to be re-started, with the repeated examination to be completed within a six month deadline of the date of the initial examination. If a student fails this second attempt, a recommendation will be made to the Dean of the FGS that the student be asked to withdraw from the Ph.D. program.

8.2 Additional Procedures for the Ph.D. Candidacy Examination

- It is essential that there is full documentation in place to support the decisions that are made. Such documentation must be available if required should the student appeal a negative decision. All original written examination material (questions and responses, bearing the examiner's comments and grades) and each examiner's written comments and grades on the three subject areas of the oral examination should be returned to the Graduate Chair and retained by the department for the normal length of time required by the university for examination materials.

- The subject areas for the examinations will be defined by the Advisory Committee immediately following the acceptance of the thesis proposal. Discussion of the subject areas may take place following the acceptance of the thesis proposal at the thesis proposal meeting or the discussion may be conducted by email. It is the duty of the advisor/co-advisor to lead this process. The process should be completed within two weeks of the acceptance of the proposal. The Graduate Chair will maintain a list of subject areas used in previous candidacy examinations to help guide the selection.
- The subject areas are reviewed by the Graduate Chair.
- The Graduate Chair will advise the student in writing of the subject areas. If necessary, the advisor/co-advisor and Graduate Chair should provide general guidance to the student on the scope of the subject areas.
- The Graduate Chair, in consultation with the student's Advisory Committee and the student, decides on an appropriate date for the examination and arranges appropriate space.
- It is the responsibility of the student's advisor/co-advisor, in consultation with the Advisory Committee, to collect the written examination questions from the Advisory Committee and forward these to the Graduate Chair at least several days in advance of the examination. The Graduate Chair will maintain a list of questions used in previous candidacy examinations to help guide the selection of questions.
- The Graduate Chair conducts the written examination of the student, and chairs the oral examination.
- Following the examination, the Graduate Chair passes the written papers to the advisor/co-advisor, who will ensure that the examiners are aware of marking methods and criteria, that the papers are marked and then circulated as a group, first to all members of the Advisory Committee and then to the Graduate Chair.
- The encompassing criteria for evaluating the Candidacy Examination are that the student has both the depth and breadth of knowledge required for the completion of the Ph.D. program. The questions in the two discipline areas of the student's research (Part I) must be answered at a satisfactory level for a Ph.D. research candidate, and the questions in the three subject areas peripheral to, but relevant to, the research area (Part II) must be answered at a satisfactory level for a senior undergraduate student. In grading questions, it is important to always keep in mind the length of time that the student had available to answer the questions, and the necessity for the student to use some of the available time to "switch gears" from question to question.
- The grading should be completed within **one week** of the examination. The following guidelines should be followed:
 1. For the written examination, assign a **separate grade** to each question and to each separate part of a question. For the oral examination, assign a **separate grade** for each of the three subject areas.
 2. Use **letter grades** (A+, A, B+, B, C+, C, D, F) rather than numerical marks, and include comments about the student's performance **relative to** the knowledge that would be expected at the typical Ph.D. (Part I) or B.Sc. Honours (Part II) level of expertise. It is recommended that each written question be graded by the person who set the question; each examiner should provide a grade for each of the three subject areas of the oral examination. The advisor/co-advisor will act as the coordinator of this task.
 3. When grading is completed, the advisor/co-advisor should collate all of the documents and circulate these, as a group, to all members of the Advisory Committee. **All** members of the committee should see and read **all** of the documents and, if appropriate, add comments. Electronic circulation may be required.

4. When all members of the Advisory Committee have seen the documents, the advisor/co-advisor must schedule a **closed meeting** of the committee to consider the results. It is not required that the Graduate Chair be present at this meeting.
5. The final result of the examination must be defined as a **Pass** or **Fail**. A pass in the Candidacy Examination is defined as a pass of both the examination in the area of the research program (Part I) and of the examination on the student's breadth of knowledge (Part II). The Advisory Committee must formulate a written justification for the outcome, based on the results of individual parts of Part I and Part II of the examination, and provide this to the Graduate Chair. Following the examination, the *Report on Ph.D. Candidacy Examination* form should be prepared, signed by the Head, and submitted to the FGS via the Graduate Program Coordinator.
6. In the event of a failure of the Candidacy Examination, the Graduate Chair in association with the Advisory Committee must prepare a written explanation to the student explaining how they have failed to pass Part I and/or Part II of the examination. This explanation should not include the grades assigned by the committee members in the evaluation process but should provide an appropriately detailed explanation for the reason for failure (e.g., "*The examination committee considered the answers of the questions in subject area 1 of the research program to not reach the level appropriate for a Ph.D. candidate. The student was unaware of, or had an incorrect interpretation of the following basic concepts ... The answers for subject area 2 were also incomplete ...*" or "*The examination committee considered the answers of the questions in two of the three subject areas peripheral to, but relevant to, the research area to not reach the required standard of the senior undergraduate level. The student answered the question on ... incorrectly and failed to address the key concept ... taught as standard concept in senior undergraduate courses on this topic.*").
 - The Graduate Chair informs the student of the result of the Candidacy Examination and in the event of failure provides the student with the written justification.

9. M.Sc. Thesis Examination

9.1 M.Sc. Thesis Requirements

The required format for the M.Sc. thesis is defined in the FGS Regulations and in the FGS Thesis Guidelines. Particular attention must be paid to copyright issues.

Both "regular" and "manuscript/grouped manuscript" styles are acceptable. As stated in the Supplemental Regulations, the Department of Earth Sciences permits published papers or about-to-be-published papers to be included in a Master's thesis, under the following conditions:

- The candidate's specific contribution to each paper (in case of multiple-authored papers) must be clearly indicated.
- The candidate must be the first author on multiple-authored papers or manuscripts.
- The thesis must include an abstract, full introduction, and conclusions.
- Where more than one manuscript is included, connecting text and common abstract, introduction, and conclusions must be included.
- There must be adherence to all other requirements as outlined in the FGS Thesis Guidelines.
- Particular attention must be paid to copyright issues.

9.2 Formation of M.Sc. Thesis Examination Committee

Under FGS Regulations, the student's advisor/co-advisor will recommend an Examining Committee to the Department Head for approval, which shall then be reported to the FGS on the *Master's Thesis/Practicum Title and Appointment of Examiners* form. This form should be submitted to the FGS

via the Graduate Program Coordinator and must be approved by the Dean of the FGS prior to distribution of the thesis.

The committee must consist of a minimum of three examiners. At least two examiners must be members of the FGS. In the situation of co-advisers, under FGS Regulations, the co-advisers together will fulfill the role of a single member of the examination committee. All examiners must be deemed qualified by the Department Head and be willing to serve. The department's Supplemental Regulations indicate that members of the M.Sc. Advisory Committee would normally, but not necessarily, be included in the Examining Committee.

In the situation of the advisor/co-advisor recommending an examiner who is not a member of the FGS, the department requires the submission of the curriculum vitae of the potential examiner to provide for the evaluation and documentation of their appointment. The Head provides a memo to the FGS indicating approval of the examiner based on inspection of the curriculum vitae.

9.3 Distribution and Evaluation of the M.Sc. Thesis

Under FGS Regulations, it is the responsibility of the Head of the major department to arrange for the distribution of the M.Sc. thesis to the examiners and to notify the FGS at the time that the thesis/practicum has been distributed for examination.

In the Department of Earth Sciences, the duty of distribution of the thesis is delegated to the Graduate Chair. The M.Sc. student should submit a pdf file of the thesis to the Graduate Chair. The Graduate Chair, in consultation with the advisor/co-advisor, will define the time-scale on which the thesis should be examined and will define a tentative time for the M.Sc. oral defence to follow the examination of the written copy. In most circumstances the time-scale for evaluation of the written thesis will be three weeks or one month.

The Graduate Chair will arrange for the distribution of the thesis along with a memorandum outlining the required evaluation procedure and the required time-scale for the examination. Following FGS Regulations, it is the duty of all examiners to read the thesis and report on its merits according to the following categories:

- Acceptable without modification or with minor revision(s);
- Acceptable subject to modification and/or revision(s);
- Not acceptable.

Note that it is normal for the student to seek their advisor/co-advisor's approval to submit the thesis for examination and for the advisor/co-advisor to have reviewed the thesis by this time. However, under FGS Regulations a student has the right to an examination of the thesis if he/she believes it is ready for examination. It is the department's responsibility to warn the student of any risk involved should he/she decide to proceed against the department's recommendation.

9.4 M.Sc. Thesis Oral Defence

The Department of Earth Sciences requires that an oral examination take place as part of the M.Sc. thesis examination.

The oral examination will be chaired by the Graduate Chair or designate, who should not be a member of the Examining Committee. The Graduate Chair or designate must be informed of the examination date at least two weeks in advance, in order to ensure the event is adequately publicized to the university community. The full Examining Committee should normally attend the defence, if necessary via teleconferencing. When the absence of an external Examination Committee member is unavoidable, they will provide questions to the Chair, who will ask these questions in the examination.

The oral examination will begin with a 20-30 minute oral presentation by the student summarizing the results of the thesis research. The oral examination is open to all members of the

university community. Following the presentation and a 15 minute open question session from the audience, everyone but the student, Chair, and Examining Committee will be asked to leave. This will be followed by two rounds of questions put to the student by each member of the Examining Committee. Each examiner will be allocated a maximum total of 20 minutes for questions. Questioning may be extended if necessary, but only under exceptional circumstances should it be allowed to exceed 60 minutes.

9.5 Final Approval/Rejection of the M.Sc. Thesis

Under FGS Regulations, following completion of the examination of the thesis, examiners will consider the oral examination and the written thesis to determine the nature of, and procedures for, approval of any revisions that will be required prior to submission to the FGS.

The judgment of the examiners shall be reported to the FGS in the qualitative terms “approved” or “not approved” on the *Master’s Thesis/Practicum Final Report* form. Each examiner must indicate his/her opinion by his/her signature. If two or more examiners do not approve the thesis, then the student is deemed to have failed the defence. In the case of a failure for the thesis at the Master’s level, a detailed written report will be prepared by the Graduate Chair or designate and submitted to the FGS, which will make the report available to the student and advisor/co-advisor. The report from the Chair should include how the first failure will be addressed and a timeline for when the second attempt should occur.

A student whose Master’s thesis has been rejected twice will be required to withdraw.

The advisor/co-advisor is normally responsible for ensuring that revisions are completed according to the instructions from the Examining Committee. The FGS will accept the thesis only when the “Master’s Thesis/Practicum Final Report” has been submitted to the FGS. The “Master’s Thesis/Practicum Final Report” and other reports should be submitted to the FGS via the Graduate Program Coordinator.

9.6 Final Submission of the M.Sc. Thesis

The requirements for the final corrected thesis and paperwork submitted to the FGS are specified in FGS documentation. In addition to the electronic copy for the FGS, a pdf file of the final version of the M.Sc. thesis must be submitted to the Department of Earth Sciences office. It will be printed and bound, at the department’s expense, for the departmental thesis collection.

10. Ph.D. Thesis Examination

10.1 Ph.D. Thesis Requirements

Under FGS Regulations, an essential feature of Ph.D. study is the candidate’s demonstration of competence to complete a research project and present the findings. The thesis must constitute a distinct contribution to knowledge in the major field of study, and the research must be of sufficient merit to be, in the judgement of the examiners, acceptable for publication.

The required format for the Ph.D. thesis is defined in the FGS Regulations and in the FGS Thesis Guidelines. Particular attention must be paid to copyright issues.

10.2 Formation of Ph.D. Thesis Examination Committee

Under FGS Regulations, the candidate’s advisor/co-advisor is considered to be a voting member of the examining committee. All voting members of the advisory committee are expected to serve on the examining committee; any exceptions must be approved in advance by the Dean of the FGS. All internal examiners must be members of the FGS.

The advisor/co-advisor, in consultation with the Advisory Committee, will recommend three distinguished scholars from outside the University of Manitoba with particular experience in the field of the thesis research and Ph.D. student advisory/examination experience to serve as the external examiner, to the Dean of the FGS for approval via the Thesis Submission Portal on JUMP. **These scholars are not to be contacted by anyone other than the FGS.** To the extent possible (keeping the previous sentence in mind), the recommendation for each prospective external examiner should include a brief CV and a short statement detailing the rationale behind the recommendation, the person's qualifications, including a current list of scholarly publications and research activities and, importantly, their experience with graduate student education. If any of the recommended examiners does not meet the criteria specified below, a detailed explanation should be included with the rationale for the recommendation.

The external examiner should:

- hold a Ph.D. or equivalent;
- hold the rank of Associate Professor, Full Professor, Senior Scholar or Emeritus Professor (or the equivalent if outside North America) at a university, or have comparable expertise and standing if not a faculty member at a university;
- have an established reputation in the area of the thesis research and be able to judge whether the thesis would be acceptable at an institution comparable to the University of Manitoba;
- have significant recent experience with the supervision and/or examination of Ph.D. students.

The external examiner should not:

- have acted as an external examiner for the same Ph.D. advisor/co-advisor within the previous two years;
- have been associated with the candidate at any time or in any significant way in the past five years, present or reasonably foreseeable future (advisor/co-advisor, colleague, teacher, co-author of published material, family member, *etc.*);
- be associated with the advisor/co-advisor in any of the following ways: former student; research advisor/co-advisor; research collaborator within the last five years; co-author of published material within the last five years;
- have had a significant academic disagreement with the candidate, the advisor/co-advisor or any member of the Advisory Committee.

The Dean of the FGS will choose the external examiner from the list provided by the advisor/co-advisor and will make the formal invitation to the external examiner. The Dean shall ensure the anonymity of the external examiner until it has been determined that the student can proceed to oral defence.

10.3 Examination Procedure

The candidate will upload the thesis to the thesis distribution portal (located on the 'Graduate Studies' JUMP tab). The FGS distributes the electronic version of the thesis to the examiners. Once the thesis has been submitted to the FGS, neither the candidate nor the advisor/co-advisor shall have any communication with the Examining Committee regarding the thesis. Under the FGS Regulations, the examination is conducted by the FGS and proceeds in two stages:

1. *Examination of the written thesis.* Support of the candidate's advisor/co-advisors, advisory committee, and department is required before the thesis is eligible for examination. Such support must be provided to the FGS through submission by the Department Head of a completed *Approval to Proceed to Examination* form. The thesis will be eligible for distribution to Internal and External examiners only once this form is received by the FGS.

The Dean of the FGS will request the Internal and External examiners to give, within three (3) weeks of the distribution of the thesis, a detailed written report of the thesis. The candidate's advisor/co-advisor may also wish to submit a report. If none or one (the dissenting voice) of the

Internal examiners fails the thesis, then the thesis may still proceed to oral defence if a passing grade is received from the External examiner. If two or more members of the Internal examining committee fail the thesis (i.e. places the thesis in categories 3 or 4 above), then the thesis fails. If the External examiner passes the thesis, then the student can proceed to oral examination so long as not more than 1 of the Internal examiners fails the thesis. If more than one Internal examiner fails the thesis, then the candidate fails the examination. If the External examiner fails the thesis, then the candidate fails the examination. The awarding of a passing grade by an Internal or External examiner does not preclude them from awarding a failing grade at a subsequent stage in the examination process. The Dean of the FGS shall provide electronic copies of all reports to each of the advisor/co-advisor, examiners and Head of the department/unit.

In the event of a first failure, the candidate may, on support of the department, be allowed to have the thesis evaluated a second time. In this case, the Department Head shall convene a meeting of the Internal members of the examining committee and the student's advisor/co-advisor to decide how to bring the thesis to an acceptable scholarly standard. In normal circumstances, this will involve additional scholarly work which the Department Head will describe, in writing, to the advisor/co- advisor, the candidate, and the Dean of the FGS.

Support of the candidate's advisor/co-advisors, advisory committee, and department is required before the thesis is eligible for re-examination. Such support must be provided to the FGS through submission by the Department Head of a new completed *Approval to Proceed to Examination* form, accompanied by a detailed summary of the changes made to improve the thesis, if any. The thesis will be eligible for second distribution to Internal and External examiners only once this is received by the FGS.

Two failures at any combination of written review and/or oral examination stage will result in the candidate being required to withdraw from the FGS.

2. *Oral examination.* Departments/units cannot proceed with scheduling the oral examination prior to receiving the approved Internal and External examiners report from the FGS. The examination must be held at The University of Manitoba normally during regular business hours. It is the responsibility of the unit to ensure that all room booking arrangements are made and appropriate facilities meet minimum standards expected for a Ph.D. defence. In addition, the candidate must submit, in electronic format biographical information and an abstract of the thesis to the FGS at least two (2) weeks in advance of the date of the oral examination..

The Dean of the FGS or designate shall act as Chair of the Examination Committee. Attendance of the external examiner at the oral examination is encouraged; if the external examiner will not be present, his/her participation via video conferencing is expected. If the external examiner cannot participate, he/she will be asked to provide questions in advance, which will be read to the candidate at the defence by the Chair. All internal members of the examining committee are required to be present at the defence, unless exceptional circumstances prevent this. Under such circumstances, and with the prior approval of the Dean of the FGS, one internal member may participate electronically. Under no circumstances can the candidate participate electronically or by telephone.

The first part of the oral examination shall consist of an oral presentation by the candidate. This is followed by examination of the candidate by the Examination Committee. If time permits, the Chair, at their discretion, may allow questions from members of the audience. Following completion of the formal examination, the candidate and audience must leave the examination room. The decision of the Examining Committee will be based both on the content of the thesis and on the candidate's ability to defend it. The judgement of the examiners shall be reported by the Chair to the FGS in the qualitative terms "pass" or "fail" on the *Final Examination of the Ph.D. Thesis* form. If either the external examiner *or* two or more internal examiners indicate a

fail, the candidate fails the examination. In this case, the Chair must submit of a copy of the report, including written detailed reasons for the decision, to the candidate, all members of the examining committee, and the Dean of the FGS.

In the case of a first failure of the oral defence, the candidate may, on support of the department, be allowed to have the thesis evaluated a second time. In this case, the Department Head shall convene a meeting of the Internal members of the examining committee and the student's advisor/co-advisor to decide how to bring the thesis to an acceptable scholarly standard.

Candidates whose thesis is failed twice at the written review and/or oral examination stage will be withdrawn from the FGS.

10.4 Final Submission of the Ph.D. Thesis

The requirements for the final corrected thesis and paperwork submitted to the FGS are specified in FGS documentation. In addition to the electronic copy for the FGS, a pdf file of the final version of the Ph.D. thesis must be submitted to the Department of Earth Sciences office. It will be printed and bound, at the department's expense, for the departmental thesis collection.

11. Departmental Appeal Procedures

Appeals of term work or final grades in courses are administered by the Registrar's Office. Refer to http://umanitoba.ca/student/records/exams_grades_hub.html or visit the Registrar's Office, 400 University Centre.

FGS Regulations define that in terms of qualifying examinations, candidacy examinations, thesis examinations, and any other academic matters, departments make recommendations for action to the FGS. In the first instance, any appeal of a department's recommended action should be handled through the departmental appeal process, which is outlined in the department's Supplemental Regulations. Appeals stemming from departmental actions on academic matters (e.g., failure in a course) will be heard by the FGS Appeal Panel only after they have been dealt with by the appropriate departmental-level appeal process.

When a departmental decision is made with regard to a student's status and/or progress in the graduate program, the student will be informed by the Graduate Chair of the nature of the decision and of the possible consequences. Following the department's Supplemental Regulations, within one week of receiving the decision/recommendation, the student may appeal the decision to the Department of Earth Sciences Graduate Appeals Committee. The appeal must be made in writing and must specify whether the appeal is of the decision or of the disposition and the basis for the appeal.

The appeal will be considered using the principles applied in other appeal processes at the University of Manitoba.

1. The Department of Earth Sciences Graduate Appeals Committee is to include the Department Head as Chair, the Graduate Chair, one other member designated by the Head, and one alternate should one of the above be responsible for the original decision/recommendation.
2. Hearings shall be held in closed session.
3. Appeal hearings shall be arranged as expeditiously as possible and all parties involved shall be given notice of the appeal hearing within a reasonable time frame.
4. As a first item of business the Graduate Appeals Committee shall consider in closed session whether there are sufficient grounds to proceed with the appeal hearing.
5. If there are sufficient grounds to proceed, the Chair will schedule the hearing of the Graduate Appeals Committee and provide notice in writing to the student (known as the Appellant).

6. The Appellant has the right to appear in person or to be represented by a Student Advocate. One member of the Appellant's immediate family and his/her lawyer may be present but only as observers who do not participate in the hearing. The Appellant must advise the Chair of the Graduate Appeals Committee with at least two days of notice of the attendance of a Student Advocate and/or observers.
7. The Appellant shall have the right to suggest witnesses that he/she wishes to appear before the panel. It will be at the discretion of the Chair to determine whether any witnesses are called. It is the responsibility of the Appellant to ensure that the witnesses are informed of the date and time of the hearing.
8. The general progression of the appeals meeting is:
 - Introduction and statement of the basis of the proceedings;
 - Appellant is given the opportunity to state their case and to call witnesses;
 - Graduate Appeals Committee members are given the opportunity to ask questions of the Appellant and/or their witnesses;
 - Appellant is given the opportunity to ask questions of the Graduate Appeals Committee members;
 - Appellant is provided the opportunity to make a closing statement.
9. The Graduate Appeals Committee will make a decision on the request in closed session.
10. As soon as possible after the decision is made the Department Head will notify the student of the committee's decision and will forward the departmental recommendation to uphold the original recommendation or to make a new recommendation to the Dean of the FGS.

12. Graduate Course Offerings and Arrangements

12.1 Course Planning and Coordination

One of the duties of the Graduate Chair is to work with advisors and the department on soliciting an appropriate list of graduate courses to be offered in the following year. This work should involve consideration of the students' need for particular courses in the following year, consideration of planned offerings by instructors, and if necessary some liaison to optimize the offerings. There is an expectation that faculty members in the department offer a minimum of one graduate course per year.

It is recognized that this course planning is made somewhat difficult by the relatively small number of faculty members and graduate students in the department, but it is important to be coordinated as much as possible. It is important for the list of courses to be formulated as early as possible to allow time-tabling and room booking to take place.

12.2 Course Delivery and Course Outlines

The offering of graduate courses should adhere to the regulations outlined in the university policy on Responsibilities Of Academic Staff with regard to Students (ROASS) and normally applied in undergraduate teaching (e.g., all courses must have a course outline defining the course content and grading scheme). Refer to http://umanitoba.ca/admin/governance/governing_documents/students/278.html.

The department requires the submission of the course outlines at the time of the start of each course for its records.

13. Awards and Scholarships

13.1 Awards

Recommendation on the selection of department graduate awards and bursaries is generally done by the department's Awards Committee. The Graduate Chair and Head assist in the submission of applications for some external awards such as the University Distinguished Dissertation award.

13.2 Scholarships

The department at times prepares nominations and rankings of students for external scholarships such as the University of Manitoba Graduate Fellowships and the Clayton H. Riddell Graduate Entrance Scholarships. These selections are coordinated by the Head and/or Graduate Chair and as needed the Graduate Admissions Committee. The Department Head and Graduate Chair are also available to help in the preparation of NSERC PGS applications.

14. Other

14.1 Receptions

It is normal in the Department of Earth Sciences for a small reception to be held for the student and attendees after an oral defence, funded by the department in recognition of the student's achievements. The organization of the reception is handled by the departmental Office Assistant, upon request by the Graduate Chair (for M.Sc. defences) or the student's advisor (for Ph.D. defences).

14.2 Outreach

The Department Head, Graduate Chair, Administrative Assistant, and Graduate Program Coordinator for the Clayton H. Riddell Faculty of Environment, Earth, and Resources are responsible for most of the advertising and outreach associated with the graduate program. This work involves maintaining brochures and web page materials and participation in occasional outreach events.

Appendix 1. Responsibilities and Duties

The roles and responsibilities listed in this section are based on the FGS document on Roles and Responsibilities: A Guide for Faculty and Students. Some of this information is defined in the Advisor-Student Guidelines.

Appendix 1.1 Responsibilities and Duties of the Department Head

The Department Head is ultimately responsible for ensuring that the graduate program of the unit is operating according to the guidelines of the FGS and their Supplemental Regulations. The specific responsibilities include the following:

- Develop a committee structure to administer the graduate program. Identify and define the role of a Graduate Chair and provide the name of the advisor/co-advisor, and Advisory Committee and his or her own role and responsibilities.
- Ensure that the department has a set of guidelines and criteria for admission of students and completion of their programs.
- Formulate specific guidelines if work experience is to be included as one of the admission criteria.
- Ensure that the Supplemental Regulations for administering the graduate programs are well defined and outlined in an official document (this document needs FGS approval).
- Provide mentorship to new faculty members as graduate advisors.
- Ensure that each student receives a letter of offer indicating the area of study, the name of the advisor, and financial support (availability, amount, source and duration).

- Define the applicable terms and conditions for each student (including those students who hold a fellowship or scholarship) receiving financial support from a unit or departmental fund or from an individual operating grant. The terms and conditions must address the issue of top-up or supplemental financial support.

Appendix 1.2 Responsibilities and Duties of the Graduate Chair

The general duties of the Graduate Chair as defined in the FGS document are:

- Serve as a liaison person between the department and the FGS. Ensure a committee is in place to administer graduate programs including admission, assigning an advisor/co-advisor and Advisory Committee and reporting on student progress.
- Ensure that students' files are current with respect to the address of the student, name of the advisor/co-advisor and the Advisory Committee members and to inform the FGS of any changes.
- Inform all members of the department engaged in graduate education about the Academic Guide, FGS Regulations, requirements and any Supplemental Regulations as well as important deadlines.
- Ensure that the students are made aware of workshops offered by the UTS (University Teaching Services; e.g., CHET – Certification in Higher Education Teaching Program), and the FGS specifically for graduate students.
- Organize students' orientation to the department and the resources available to them.
- Provide the student with information about the role and responsibilities of the advisor/co-advisor, and Advisory Committee and his or her own role and responsibilities (i.e., Advisor-Student Guidelines).
- Monitor implementation of the Department Head's decision regarding the student's access to an assigned advisor/co-advisor and to a designated acting advisor in the case of the advisor's absence (research/study leave or leave of absence).
- Ensure that the student has formally submitted a thesis proposal to the Advisory Committee, including well-stated objectives and a path for achieving them.
- Ensure the student meets the advisor/co-advisor or Advisory Committee to discuss coursework, research program, progress and future plans.
- Ensure that collaborative research (inter-unit/departmental, inter-university or with an outside research institute) is identified and that the specific role of each unit is clearly defined.

Specific duties include:

- Chair the Graduate Admissions Committee. The Chair may make rejection decisions without consulting the committee but will report all decisions to the committee.
- Make periodic consultations with the Graduate Program Coordinator for the Clayton H. Riddell Faculty of Environment, Earth, and Resources and the departmental Administrative Assistant about correspondence from potential applicants and funding levels, and with potential advisors about applicants.
- Supervise, coordinate, and maintain standards for the following examinations, and chair examination committees and oral presentations when required: M.Sc. thesis proposal; M.Sc. thesis oral defence; Ph.D. thesis proposal; and Ph.D. Candidacy Examination.
- Review the progress of all students in the pre-Master's, M.Sc. and Ph.D. programs on a yearly basis and verify that the annual FGS reports are submitted each year.
- Chair the Graduate Affairs Committee, which meets on an irregular basis.
- Act as student advocate for graduate students who have problems with advisors/co-advisors, committees, department, or faculty. In the process of this capacity as advocate, consultations will normally involve just the Chair, although the full GSC may be consulted.

- Make recommendations to, and have periodic discussions with the Department Head and with the Dean or Associate Dean of the FGS.
- Chair (or share chairing with the Head) of the Graduate Curriculum Committee.
- In consultation with the Administrative Assistant, consider the scheduling of graduate courses.
- Have periodic consultations with advisors/co-advisors about various graduate studies matters.
- Have periodic consultations with the Head about various graduate studies matters including student problems, advisor/co-advisor problems, appointment of faculty members to the FGS, appointment of adjunct professors.
- Undertake other duties dealing with graduate students within the department.
- Periodically review current graduate course offerings and recommend on those courses to be dropped or revised. This process is to be scheduled in relation to retirements and the hiring of new faculty.
- Periodically review the format and educational quality of workshop courses offered by faculty members. The objective of the workshop course is to provide the opportunity for a student to receive more specific knowledge or training than that offered by other graduate courses; knowledge gained from the workshop can be unrelated to, peripheral to, or directly related to thesis research, but the workshop is not to be part of thesis research.
- Produce a handbook for incoming graduate students listing all Supplemental Regulations for graduate studies, brief descriptions of facilities in the department, information about obtaining access to such facilities, and some course information.
- See that the department receives credit for interdisciplinary graduate students whose main advisor and office are within the department.
- In consultation with the Head, examine and modify as necessary Supplemental Regulations concerning graduate studies in the department.
- Preview proposed new courses before they are presented to Department Council for approval.
- Examine and periodically recommend funding levels for graduate students.

Appendix 1.3 Responsibilities and Duties of the Advisor/Co-advisor

The advisor/co-advisor is not only a mentor to the student, but also provides leadership in forming the partnership with his/her students, the department, and the Advisory Committee. The following responsibilities are for the advisor/co-advisor to ensure equitable and high quality academic training to the student:

- Inform and update the student of his/her academic and holiday schedule on a regular basis so that the student is aware of how much time and when access can be reasonably expected from the advisor/co-advisor.
- Seek and provide the student with adequate financial support, where possible.
- Ensure completion of the “Advisor-Student Guidelines” form prior to the commencement of any research and no later than the submission of the first Progress Report.
- Work with the student to develop a research topic(s) ensuring that the research plan is well defined, realistic and manageable within the allocated time frame for successful completion of the program.
- Ensure that within the first six months to a year, the student has an Advisory Committee, the program of study is approved by the Advisory Committee with respect to FGS requirements (the number and type of courses), and a research plan.
- If there are major modifications to the research plan after one year, a revised research plan must be approved by the Advisory Committee at that time.

- Schedule regular meetings with the student to monitor progress. Such meetings should include discussion of management strategies and methodological approaches after the research topic is well defined, and a review of the process of data collection.
- Discuss with the student how research is to be documented and how records are to be kept, and refer the student to the University of Manitoba Responsible Conduct of Research documents (http://umanitoba.ca/admin/governance/governing_documents/research/responsible_conduct_of_research.html).

Appendix 1.4 Responsibilities and Duties of the Advisory Committee

The Advisory Committee acts as a partner with the student and the advisor/co-advisor in advising the student on research problems. The members are selected based on their fields of expertise, the nature and planning of the research project and to complement the expertise of the advisor/co-advisor in providing guidance to the student. The committee structure will depend on departmental regulations as well as the guidelines and regulations of the FGS.

To a reasonable extent, each member serving on the Advisory Committee is expected to take the following responsibilities:

- Be familiar with the research project of the student.
- Be available for meetings with the advisor/co-advisor and the student for preparing the annual progress report or as deemed essential.
- Be reasonably available for consultation with the student in addition to regular meetings.
- Review the thesis in a timely manner for final examination.
- Clarify with the student questions regarding intellectual property rights, primary authorship on research articles and the specific role of the student, the advisor/co-advisor and other collaborators in the research program.
- Hold meetings once a year, or more often as required, with the student to discuss research progress and future course of action. Ideally, these meetings are to be held at the beginning of the student's program and within the first year.
- Provide the student with the opportunity to attend and to present his/her findings at research conferences depending on the availability of funds.
- Provide the student with the guidelines for preparing the thesis (http://umanitoba.ca/faculties/graduate_studies/thesis/index.html; <http://umanitoba.ca/libraries/elibrary/mspace/>).
- Read and provide comments to any written material (thesis reports, etc.) submitted by the student in a timely manner (two to four weeks depending on the length of the document). Normally an advisor/co-advisor would require at least four weeks to provide feedback on a full thesis.

Appendix 1.5 Responsibilities and Duties of the Graduate Student

The student should look upon graduate research as a partnership with the advisor/co-advisor, Advisory Committee and the department. Ultimately, the student is responsible for conducting the proposed research work and course of study. The responsibilities of a graduate student are as follows:

- Know the policies, procedures and deadlines of the FGS. Each student must consult the Academic Guide and the current Graduate Calendar for specific information.
- Declare her/himself as full-time or part-time based on the time that would be devoted to graduate studies (see Academic Guide).
- Assess her/his financial needs during the tenure of the graduate program and obtain a document from the advisor/co-advisor outlining the type and duration of the financial support (note: student may receive a letter indicating no support is available).

- Share the responsibility with the advisor/co-advisor to develop a sound research plan that has an achievable timetable and milestones.
- Keep a systematic record of research work and results and be able to answer to the advisor/co-advisor and the Advisory Committee with respect to progress.
- Self-evaluate progress and productivity throughout the program.
- Become familiar with and follow the University of Manitoba Responsible Conduct of Research documents (http://umanitoba.ca/admin/governance/governing_documents/research/responsible_conduct_of_research.html).
- Ensure that a meeting is held with the advisor/co-advisor and the Advisory Committee (where applicable) and prepare/present an FGS progress report at least once per year.
- Call additional meetings with the Advisory Committee after consultation with the advisor/co-advisor, if considered essential to the progress of the research.
- Organize and be efficient in processing the data and in the planning of future research. Keep abreast of current literature in the field.
- Take full responsibility for her/his academic and research program.
- Allow adequate time for her/his advisor/co-advisor or committee members to provide comments on written material. The student must consult her/his advisor/co-advisor and the Advisory Committee members to estimate the time that would be required to complete a thesis or a report.
- Ensure allocation of sufficient time to meet important deadlines (registration, thesis submission to committee members, etc.).

Appendix 1.6 Responsibilities and Duties of the Graduate Program Coordinator

The Graduate Program Coordinator for the Clayton H. Riddell Faculty of Environment, Earth, and Resources acts as an aid to the student, advisor/co-advisor and Graduate Chair by liaising with FGS, handling application files, maintaining student files, helping with registration, and being a resource for the steps needed to graduate. Responsibilities and duties include:

- Answer questions pertaining to applications and admissions process.
- Keep a file for each student that includes copies of all forms sent to the FGS.
- Help the student register for courses by processing Registration Approval Forms, removing department/FGS holds, applying appropriate overrides; help instructors process late or CO grades when necessary.
- Prepare and distribute Progress Report forms to advisors, and shepherd the forms through the FGS when complete; alert students and advisors when something is missing.
- Alert students and advisors to issues/changes that come through the FGS that might affect the student's progress.
- Assist the Graduate Chair or other committees with the organization and submission of award nominations, such as the University of Manitoba Graduate Fellowships.
- Send pertinent announcements to students through the mailing lists.

Appendix 1.7 Responsibilities and Duties of the Earth Sciences Administrative Assistant

The Administrative Assistant assists the student, advisor/co-advisor and Graduate Chair by overseeing graduate program-related communications from the department, and managing student stipend and scholarship arrangements, teaching assistantships and other matters pertaining to the student's residency in the department. Responsibilities and duties include:

- Update Earth Sciences graduate program brochure and website pages.
- Distribute the Earth Sciences Graduate Program Procedures handbook.

- Inform students of the department's recommendation for admission to the graduate program.
- Provide funding information to the student.
- Post teaching assistant positions available within the Department.
- Notify students when teaching assistant positions are posted and when they are appointed.
- Coordinate office assignment, photocopier access, graduate student email list.