

Renewable Resources Graduate Program Handbook

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The Graduate Program Handbook is the departmental implementation of the policies and procedures outlined by the Faculty of Graduate Studies and Research (FGSR) for graduate programs.

Every current graduate student should be familiar with the section of the Graduate Program Handbook that pertains to their specific program as well as the general guidelines.

For more information and details on policies and procedures that govern our graduate programs, consult the Graduate Program Manual maintained by the Faculty of Graduate Studies and Research, or follow the links to important sections of the manual from our Graduate Student Resources page:

- [FGSR Graduate Program Manual](#)

1. General Responsibilities for Graduate Programs

The most important determinant of the success of a student's graduate program will be the talent and initiative shown by that student. Nevertheless, several other individuals and groups play an important role in facilitating the academic growth that will permit students to achieve their goals: FGSR, the Department (including the Graduate Administrator, the Graduate Coordinator, and Graduate Committee), the supervisory committee, and the supervisor.

In this section:

- Faculty of Graduate Studies and Research
- Department of Renewable Resources
- The Graduate Contact / Graduate Administrator
- The Graduate Coordinator / Associate Chair, Graduate Programs
- The Graduate Committee
- The Supervisor
- The Graduate Student

1.1. Faculty of Graduate Studies and Research

FGSR bears the ultimate responsibility (and is the ultimate authority) for issues related to graduate programs. Specifically, its responsibilities include: admitting of students; setting minimum entrance requirements and minimum academic standing requirements, and ensuring that these are met; approving all changes to students' programs; approving appointment of supervisors, supervisory committees, and examining committees; submitting to the Council of the Faculty of Graduate Studies and Research for approval changes affecting policy, general and degree regulations, etc.

1.2. Department of Renewable Resources

The Department plays an important role in graduate programs by overseeing the supervision of graduate students enrolled in its programs; developing its own customized guidelines and rules for graduate programs that are consistent with the rules of FGSR, making recommendations to FGSR on numerous matters including admission of students, appointment of the supervisor and supervisory committee members, course and program changes, scheduling of examination dates, etc.; and allocating departmental graduate student funding and nominating students for awards.

1.3. The Graduate Contact / Graduate Administrator

The graduate administrator has several responsibilities including: administrative work related to admission, scholarship applications, course registration, scheduling exams and defense seminars, maintaining graduate student records and a database of student statistics, keeping abreast of program requirements, and distributing information to students. The Graduate Administrator should be the first point of contact when students have queries about program-related matters, and can be reached at grad.ales@ualberta.ca

1.4. The Graduate Coordinator / Associate Chair, Graduate Programs

The Graduate Coordinator / Associate Chair, Graduate Programs chairs and makes executive decisions on behalf of the Graduate Committee and serves as the primary liaison between the Department and FGSR. The Graduate Administrator and the Graduate Coordinator work together to monitor graduate student programs and administer scholarship nominations, awards and assistantships. They also advise on, clarify, resolve problems related to program requirements, procedures, and deadlines.

1.5. The Graduate Committee

The Graduate Committee makes recommendations on policy to the Department, provides advice to the Graduate Coordinator, and provides a pool of neutral chairs for candidacy and final PhD exams. Graduate committee members also jointly adjudicate most departmental awards and nominate students for a number of external scholarship opportunities.

1.6. The Supervisor

Although universities use the terminology of "supervision", in many ways graduate supervision is more accurately described as "mentoring". The relationship between students and supervisors is normally close and long-lasting. The supervisor assists the student in planning a program, ensures that the student is aware of all program requirements, degree regulations, and general regulations of the department and the Faculty of Graduate Studies and Research (FGSR), provides counsel on all aspects of the program, and stays informed about the student's research activities and progress. The supervisor is also charged with ensuring that students conduct their research in a manner that is as ethical, effective, safe, and productive as is possible. In other words, graduate student supervisors are intellectual role models and academic guides. Specific supervisor responsibilities also include:

- With the student, establish a realistic timetable for completion of various phases of the program;
- Work with the student to establish the supervisory committee as soon as possible after the start of the program and ensure that it maintains contact and formally meets at least once a year with the student;
- When going on leave or an extended period of absence, ensure that the student is adequately supervised by the provision of an acting supervisor (who should be a member of the supervisory committee);
- Set up committee meetings and examinations after consultation and with full knowledge of the student;
- Assist in ensuring that the student is aware of all program requirements, degree regulations and general regulations of the Department and FGSR;
- Arrange for and attend all supervisory committee meetings and oral examinations, ensuring that these are scheduled and held in accordance with FGSR regulations; and
- Review the thesis both in draft and final forms.

1.7. The Graduate Student

The responsibility for producing an acceptable thesis ultimately rests with the graduate student. It is expected that graduate students will take the initiative in designing and implementing their research projects. If funding for a student's project comes from an outside agency, that relationship may impose some constraints on the research topic. In such instances, the supervisor must assure that there is adequate flexibility to permit the student to explore their own ideas. In the case of the PhD, it is critical that the student be able to demonstrate the ability to work independently. "The essential requirement for the doctorate is the planning and carrying out of research of high quality leading to an advance in knowledge in the candidate's field of study." In the case of the MSc degree, "the thesis should reveal that the candidate is able to work in a scholarly manner and is acquainted with the principal works published on the subject of the thesis". Furthermore, graduate students should take responsibility for their graduate programs. They are expected to read the Calendar and any other relevant documents to

become familiar with all regulations and deadlines relating to their programs. The students' specific responsibilities include:

- Ensuring that their registration is accurate and does not lapse;
- Submitting appropriate forms to the Department for signature and processing;
- Paying all fees required by the deadline dates set out in the Calendar;
- Maintain open communication with their supervisor and Graduate Coordinator concerning any problem either real or perceived;
- Inform the supervisor regularly about progress and provide an oral/written report at annual supervisory committee meetings;
- Make research results accessible (beyond their appearance in a thesis) to an appropriate audience, especially through presentations at conferences and by submission of manuscripts to appropriate peer reviewed journals; and
- Be aware of deadlines for possible scholarship applications, and to seek advice and assistance from the Department in making applications.

2. General Requirements and Guidelines

In this section:

- 2.1 Academic Standing
- 2.2. Academic Integrity and Ethics Training Requirement
- 2.3. Professional Development Requirements
- 2.4. Thesis Requirements
- 2.5. Conduct of Oral Examinations

2.1 Academic Standing

Regardless of a student's category, the pass mark in any course taken for credit is a grade of C+. In order to remain in a graduate program in the Department, a student must maintain a minimum cumulative grade point average of 3.0 with no grade less than C+. If a current student fails to maintain a satisfactory GPA, the Department will submit a Change of Category or Academic Standing form to the FGSR for approval, detailing conditions of the probation. If approved, a comment of "On Academic Probation" is added to the student record and reflected on the student's transcript. Once the student has satisfied the conditions of probationary period, the department will recommend that probation be cleared. If approved, a comment of "Cleared Academic Probation" is added to the student record and reflected on the student's transcript.

Graduate Seminar Courses - REN R 603, 604 and 605 (thesis-based only): The Department offers three graduate seminar courses, REN R 603 (Graduate Research Skills) in the Fall term and REN R 604 and REN R 605 (Graduate Research Seminar) in the Winter term. REN R 604 is geared towards Masters students, while RENR 605 is geared towards doctoral students. All thesis-based students **must** take RENR 603 and either RENR 604 **or** REN R 605. In REN R 603, lectures are used to provide students with knowledge of professionalism, research skills, and communication in a research environment. In REN R 604 and REN R 605, students are given the opportunity to apply

some of what they learned in the lectures as they are required to give a seminar, to moderate a seminar, to present a poster, and to provide a constructive critique of another student's seminar. REN R 603 must be taken as early in the student's program as possible (typically in the first term for a Fall term program start), and REN R 604 or REN R 605 should be taken later in the program so that the student has some research results to present in the seminar and poster session.

2.2. Academic Integrity and Ethics Training Requirement

Ethics and academic integrity training is mandatory for all UofA graduate students. Each student must complete the equivalent of at least eight hours of structured academic activity in order to be eligible for graduation. The Department requires that the **eight hours** of ethics training are completed within the **first 6 months** of the students program through two web-based courses: (1) GET (Graduate Ethics Training), a web-based course offered by FGSR, equivalent to five hours of training, that covers the topics: conflict of interest, conflict resolution, intellectual property, integrity and scholarship, graduate student-supervisor relationships; and (2) CORE (Course On Research Ethics), a web-based course offered by NSERC, equivalent to three hours of training, that covers the topics: research ethics, research with human subjects, informed consent, privacy and confidentiality, and first nations research. Once students have completed the CORE and GET courses they must submit the appropriate summary to the Graduate Program Administrator, so that their transcript bears a notation indicating that they have successfully completed ethics training.

2.3. Professional Development requirements

Starting with students admitted in Fall 2016, FGSR requires that all graduate students must complete the University of Alberta Professional Development Requirement which includes the Individual Development Plan (IDP) and **eight hours** of professional development activities. The Department requires that the IDPs (but not the activities) are completed within the **first 6 months** for students starting in the fall term, and within the **first 12 months** for students starting in the winter term. Guidance for developing the IDP is provided through the Graduate Seminar Course REN R 603, a required course for students in thesis based programs (see 2.1.2 above). Students in course-based programs may audit the relevant REN R 603 lecture. Once students have completed the IDP and eight hours of activities, they must submit the appropriate documentation to the Graduate Program Administrator.

2.4. Thesis Requirements

The Department endorses the concept of a thesis comprised of papers for publication for both MSc and PhD degrees. Theses with **multiple papers** should have an introductory chapter that provides an overall rationale for the thesis, a statement of the general thesis objectives, and description of the chapter structure with their specific objectives. Following the data chapters, the thesis concludes with a comprehensive synthesis arising from the research. The synthesis may state overall scientific conclusions linking back to the stated objectives, or it may discuss applications or implications that arise from multiple data chapters. A thesis that corresponds to a **single publication** does not need a chapter structure. Since most publications already conform to a traditional thesis format, the Department recommends a number of optional extensions that may include a longer introduction section, an additional literature review section, figures and tables that could not be included in the journal article, and/or an expanded conclusion section.

A **Master's thesis**, at a minimum, should reveal that the student is able to work in a scholarly manner and is acquainted with the principal works published on the subject of the thesis. As far as possible, it should be an original contribution. The expectation of the Department is that the contribution of a Master's thesis should be **equivalent to one** first-authored publication in a reputable peer-reviewed scientific journal. A **doctoral thesis** must embody the results of original investigations and analyses. It must constitute a substantial contribution to the knowledge in the student's field of study. The expectation of the Department is that the contribution of a doctoral thesis should be **equivalent to three** first-authored publications in reputable peer-reviewed scientific journals.

We stress the importance of the wording "**equivalent**" in stating these expectations. There is no prescribed minimum chapter/paper count as the quality, originality, and scientific value of such contributions can be extremely variable. Data chapters do not need to be published, accepted, or submitted at the time of defense. Co-authored contributions may be included as data chapters as long as they contribute to the overall thesis objectives. We endorse collaborative research among students, which may result in papers to appear in multiple theses. However, the Department requires that at least one data chapter in a paper-based doctoral thesis must be lead and first-authored by the candidate. Further, the Department (as well as FGSR) require a **thesis preface** that describes the student's contribution to each data chapter, as well as the contribution of each co-author in published papers or planned manuscripts.

2.5. Conduct of Oral Examinations

Formal examining committees are required for thesis-based master's final examination, doctoral candidacy examinations, and doctoral final examinations. Members of these examining committees perform two functions: 1) they bring disciplinary knowledge and expertise to the assessment of the thesis, and 2) they ensure that the University's

expectations are met regarding the conduct of the examination, adherence to all relevant policies, and the suitability of the thesis for the degree.

Every examining committee must have a chair who is not a supervisor but is a member of the student's home department. The chair should have sufficient experience of graduate examinations to be able to allow the examination to be conducted in a fair manner, and is responsible for moderating the discussion and directing questions. It is the chair's responsibility to ensure that departmental and FGSR regulations relating to the final examination are followed.

The Department recommends the following general conduct of oral examinations:

- The Chair establishes that all committee members are **in attendance** in person or via video- or teleconference call. The exam cannot proceed without the minimum FGSR-required membership of the exam committee. Up to two examiners may attend via video- or teleconference call, though it is preferred for no more than one examiner to attend remotely.
- All formal exams typically follow a student seminar (exit seminars), or a student's presentation (candidacy exams). Following the presentation, the Chair opens the examination with a brief **introduction** of the examiners (if required), and by explaining the exam procedure.
- In case of candidacy exams, the student's course record and academic accomplishments and recognitions are also briefly reviewed by the Chair.
- Subsequently the Chair establishes the **order of questioning**, usually starting with the examiner furthest removed from the student's research project, and ending with the supervisor. The chair may encourage out-of-order follow-up questions for a more interesting and engaging exam.
- In case of doctoral exit exams with an external reader, the Chair starts the exam by briefly summarizing the commentary and conveying the questions for the candidate's response.
- Typically, **two rounds of questioning** are conducted, with the first round 15-20 minutes per examiner, and the second round 5-10 minutes. Normally, the total time of questioning should be about 2 hours with a 5-10 minute break after about 1 hour. For large committees, the second round may be shortened to 1-2 questions, or the supervisor may be asked to keep it brief. However, the university-external examiner in doctoral exams should be given ample amount of time to raise all concerns he or she may have.
- The Chair keeps track of time, ensures that the focus stays on questioning the candidate, intervenes if questions are not fair, and schedules breaks as necessary.
- The questioning is concluded by giving the candidate the opportunity for a **closing statement** or voicing any concerns or questions he or she may have. We do **not** recommend to encourage the student to revisit questions that may not have been well answered.
- The candidate is asked to leave the room for the committee to deliberate the outcome. The outcome is determined in **two rounds of polling** of the exam committee members in the order of questioning.
- In the **first round**, the examiners note their first assessment of the result without justification as to not unduly influence the other committee members. The outcomes for exit exams are "Pass", "Pass subject to revisions", "Adjourned", and "Fail". For candidacy exams they are "Pass", "Conditional pass", "Fail and repeat", and "Fail and

terminate or change program". For more detail on what the exam outcomes represent, see handbook Sections 3.2.4, 4.3 and 4.4.

- In the **second round**, examiners may explain their reasons for the decision. The Chair ensures that all exam committee members are heard, and takes notes to convey the essence of the discussion to the student in verbal and/or written form. The Chair mediates the discussion to come to an agreement.
- **Agreement is reached, when** (1) all or all but one of the examiners agree to an outcome of "Pass", "Pass subject to revisions", or "Fail and terminate or change program" (2) a majority of examiners agrees to an outcome of "Adjourned", "Conditional pass", or "Fail and repeat". If no agreement can be reached, the Department will refer the matter to the Associate Dean, FGSR, who will determine an appropriate course of action.
- After the student is brought back into the room, the Chair **announces the outcome** and briefly summarizes the comments of the exam committee, concludes the exam, and collects signatures if applicable.
- In all cases except for a straight "Pass", the Chair must draft a **written report** of the reasons for the outcome, stating any required revisions, conditions or recommendations for the student. The draft should be circulated to all exam committee members for editing and approval. The graduate administrator circulates the final version of the report to the student, the examiners, and FGSR.
- In case of an outstanding thesis defense, the exam committee may nominate the student for a Departmental **outstanding MSc/PhD thesis award**. Nominations should be ~500 words: mention thesis-based publications, explain scientific contributions or applied value of the research, and point out exceptional seminars or exam performances. Nominations should be made by the exam chair with input from the supervisor and examination committee immediately following the defense. Submit the nomination together with exit-exam paperwork to the Graduate Administrator.

3. Program Requirements: Master of Science

In this section:

- 3.1. Program Requirements
 - 3.1.1. Course requirements
 - 3.1.2. Thesis requirements
 - 3.1.3. General requirements
 - 3.1.4. Length of program
 - 3.1.5. Supervisory Committee
 - 3.1.6. Promotion to PhD program
- 3.2. Final Examination
 - 3.2.1. Exam organization and time lines
 - 3.2.2. Exam committee
 - 3.2.3. Exam procedure

3.1. Program Requirements

3.1.1. Course requirements

Course requirements for the MSc are based on the student's previous training and the anticipated needs in the student's area of specialization. Requirements are REN R 603 and REN R 604 plus a minimum of ★6 of courses at the 500- or 600-level. Additional courses may be required at the discretion of the student's supervisor. Course work should include at least ★2 in research methods, statistics, and/or experimental design, which may be taken at the undergraduate or 700-level, but in that case will not count toward the ★6 course requirement at the 500- or 600-level. Courses may be drawn from those listed for the Department of Renewable Resources, and from other Departments within the University.

3.1.2. Thesis requirements

Candidates for the degree of Master of Science must prepare an acceptable thesis presenting results of research conducted. The thesis should reveal that the candidate is able to work in a scholarly manner and is acquainted with the principal works published on the subject of the thesis. As far as possible, it should be an original contribution. For more details on Departmental expectations for MSc theses, see Section 2.4. of the graduate handbook. Candidates will be examined orally on their thesis results by an examining committee (see Section 2.5 and below for more details).

3.1.3. General requirements

Throughout their program, students must remain in good academic standing, and they must complete the Professional Development and Ethics requirements of the University of Alberta. For more details refer to Section 2 of this handbook.

3.1.4. Length of program

Over the duration of their program, students in thesis-based master's programs must pay the equivalent of at least one full year of program fees. The minimum period of residence is two four-month terms of full-time attendance at the University of Alberta. The time required to complete an MSc program will vary according to the previous training of the applicant and the nature of the research undertaken. However, a typical length of MSc programs is two to two and a half years in the Department. Candidates must complete all the requirements within four years of the term in which they first register as probationary graduate students or as candidates in the master's program.

3.1.5. Supervisory Committee

An MSc supervisory committee will normally consist of the supervisor plus one other committee member. Supervisory committee members may be U of A Faculty, defined as tenured, tenure-track, retired faculty member, or a Faculty Service Officer (current or retired categories A1.1, A1.3, or current category C1.1, as per the University's Definition and Categories of Academic Staff and Colleagues). Postdoctoral fellows and research associates are not eligible to serve on supervisory committees. The second committee

member may be appointed as co-supervisor to indicate a higher level of involvement than usual in the student's research project.

The Department also allows **one supervisory committee member** to be a faculty member from another educational institution, an adjunct Professor, a collaborator from the private sector, the government or an NGO. A non-U of A committee member must be expert in the field of the student's thesis research, capable of providing advice equivalent to that from a U of A faculty member. A non-U of A supervisory committee member counts towards the minimum number of examiners required by FGSR, but U of A faculty members (as defined above) must outnumber non-U of A committee members at the final exam.

The supervisory committee should be established by the supervisor **within the first six months** in consultation with the student. Supervisors must formally establish the supervisory committee by submitting this form to the Graduate Administrator. Supervisors are also responsible to schedule annual committee meetings, and submit a progress report form to the Graduate Administrator.

3.1.6. Promotion to PhD program

Students and supervisors may jointly decide to request a change of program from MSc to PhD prior to graduation. The promotion is usually conditional upon (1) good academic standing of the MSc student with a GPA>3.5, (2) the student's demonstrated the ability to pursue research at a level expected of a PhD student, (3) an extension of the MSc research proposal to a scope suitable for a PhD project, and (4) funding to support the research and living expenses of the student. To initiate a change of program, the supervisor should contact the Graduate Coordinator with a request that provides details on the above criteria. A candidacy exam must be held within one year of switching from an MSc to a PhD program.

3.2. Final examination

3.2.1. Exam organization and time lines

The Department recommends the following steps and timelines for organizing the final oral exam for MSc candidates:

- The supervisor must organize a supervisory committee meeting prior to the exam, where a draft document of the thesis can be reviewed and discussed, usually about **3-6 months** before the exam. The Graduate Student Progress Report form should indicate that research progress is satisfactory and that preparations for the final exam may commence.

- About **1-2 months** prior to the examination, the supervisor finds an arms-length examiner and exam chair and schedules the exam. Both roles may be served by the same faculty member from the department.
- At least **3 weeks** prior to the final oral examination, the supervisor notifies the Graduate Administrator with the exam information (committee composition, date, time, place). The Graduate Administrator completes and submits an Examining Committee & Examination Dates form to FGSR for approval.
- At least **3 weeks** prior to the final oral examination, the student supplies examiners, including the examination chair, with a copy of the thesis so that they may have adequate time to appraise the thesis.

3.2.2. Exam committee

MSc final oral examining committee consists of the supervisory committee plus one additional arms-length exam committee member.

- In total, there should be at least three examiners. The majority of examiners (normally 2 of 3) must be U of A Faculty, defined as tenured, tenure-track, retired faculty member, or a Faculty Service Officer (current or retired categories A1.1, A1.3, or current category C1.1, as per the University's Definition and Categories of Academic Staff and Colleagues).
- An arm's length examiner is knowledgeable in the field and comes fresh to the examination. They must not be (or have been) a member of the supervisory committee, or have been connected with the thesis research in a significant way. The examiner should not have been associated with the student, outside of usual contact in courses or other non-thesis activities within the University, nor be related to the student or supervisor(s). The arm's length examiner should not be a former supervisor or student of the supervisor(s). An arm's length examiner should not be an active collaborator of the supervisor(s).
- All members must attend the examination, and it is recommended no more than one member attend the examination by video conference or teleconference call. Only under exceptional circumstances and with approval by the graduate coordinator may the supervisor attend remotely.
- The exam must be chaired by a faculty member from inside the Department. If the arms-length examiner is a faculty member from inside the Department, he or she may serve a dual role of examiner and chair.
- The exam may be held at locations other than the University of Alberta. Guests are not permitted during the exam.

3.2.3. Exam procedure

All students completing the MSc program are required to deliver a seminar (usually 30 minutes including questions) presenting their thesis research prior to the thesis defense. Normally, the seminar is presented just before the final oral exam so that all exam committee members are able to attend. A final oral examination, based largely on the

thesis, shall be conducted by the examining committee in accordance with the general guidelines for examinations as described in Section 2.5 of the handbook.

3.2.4. Exam outcome

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. Agreement on the exam outcome is reached, when all or all but one of the examiners agree to an outcome of **Pass**, **Pass subject to revisions**, or **Fail**, or when a majority of examiners agrees to an outcome of **Adjourned**. If no agreement can be reached, the Department will refer the matter to the Associate Dean, FGSR, who will determine an appropriate course of action. The possible outcomes are explained in detail below.

In case of an outstanding thesis, the exam committee may nominate the student for a Departmental **Outstanding MSc Thesis Award**. Nominations should be ~500 words and mention thesis-based publications, explain scientific contributions or applied value of the research, and point out exceptional seminars or exam performances. Nominations should be made by the exam chair with input from the supervisor and examination committee immediately following the defense. Submit the nomination together with exit-exam paperwork to the Graduate Administrator.

- **Pass:** The student has satisfactorily defended the thesis and suggestions for revisions are editorial in nature and at the discretion of the student. The department submits a completed Thesis Approval/Program Completion form to the FGSR. If one of the examiners fails the student, that examiner does not have to sign this form.
- **Pass subject to revisions:** The student has satisfactorily defended the thesis but the revisions to the thesis are sufficiently minor that it will not require a reconvening of the examining committee. If the examining committee agrees to a "Pass subject to revisions" for the student, the committee chair, with input from the examining committee, must provide **in writing**, within five working days of the examination, to the Dean, FGSR, and the student via the Graduate Administrator:
 - the reasons for this outcome,
 - the details of the required revisions,
 - the approval mechanism for meeting the requirement for revisions (e.g., approval of the examining committee chair or supervisor, or approval of the entire examining committee, or select members of the committee), and
 - the supervision and assistance the student can expect to receive from committee members.

The student must make the revisions within six months of the date of the final examination. Once the required revisions have been made and approved, the department shall submit a completed Thesis Approval/Program Completion form to the FGSR indicating "pass subject to revisions". If one of the examiners fails the student that examiner does not have to sign the form. If the required revisions have not been

made and approved by the end of the six months deadline, the student will be required to withdraw.

Adjourned: An adjourned examination is one that has been abandoned officially. A majority of examiners must agree to an outcome of Adjourned. The final examination should be adjourned in the following situations:

- The revisions to the thesis are sufficiently substantial that it will require further research or experimentation or major reworking of sections, or if the committee is so dissatisfied with the general presentation of the thesis that it will require a reconvening of the examining committee. In such circumstances the committee cannot pass the student, and must adjourn the examination.
- The committee is dissatisfied with the student's oral presentation and defence of the thesis, even if the thesis itself is acceptable with or without minor revisions.
- Compelling, extraordinary circumstances such as a sudden medical emergency taking place during the examination.
- Discovery of possible offences under the Code of Student Behaviour after the examination has started.

If the examination is adjourned, the committee chair, with input from the exam committee members should:

- Specify in writing to the student, with as much precision as possible, the nature of the deficiencies and, in the case of revisions to the thesis, the extent of the revisions required. Where the oral defence is unsatisfactory, it may be necessary to arrange some discussion periods with the student prior to reconvening the examination.
- Decide upon a date to reconvene. If the date of the reconvened examination depends upon the completion of a research task or a series of discussions, it should be made clear which committee members will decide on the appropriate date to reconvene. This new examination must be held within six months of the initial examination.
- Make it clear to the student what will be required by way of approval before the examination is reconvened (e.g., approval of the committee chair or supervisor, approval of the entire committee, or of select members of the committee).
- Specify the supervision and assistance the student may expect from the committee members in meeting the necessary revisions.
- Advise the Dean, FGSR, in writing of the adjournment and the conditions via the Graduate Administrator.
- When the date is set for the adjourned final examination, the department will notify the FGSR. Normally a Pro Dean attends the examination.
- **Fail:** If the examination result is a Fail, no member of the examining committee signs the Thesis Approval/Completion form. When the outcome is a Fail, the committee chair will provide the reasons for this decision to the department. The

department will then provide this report, together with its recommendation for the student's program, to the Dean, FGSR, and to the student via the Graduate Administrator. An Associate Dean, FGSR will normally arrange to meet with the student, the graduate coordinator, and others if needed, before acting upon any departmental recommendation that affects the student's academic standing.

4. Program Requirements: Doctor of Philosophy

In this section:

- 4.1. Program Requirements
 - 4.1.1. Course requirements
 - 4.1.2. Thesis requirements
 - 4.1.3. General requirements
 - 4.1.4. Residency requirements
 - 4.1.5. Program timelines
 - 4.1.6. Supervisory Committee
- 4.2. Pre-Candidacy Assessment
- 4.3. Candidacy Exam Guidelines
 - 4.3.1. Purpose and timing
 - 4.3.2. Exam preparation
 - 4.3.3. Candidacy statement and CV
 - 4.3.4. Candidacy exam organization
 - 4.3.5. Candidacy exam committee
 - 4.3.6. Candidacy exam procedure
 - 4.3.7. Candidacy exam outcome
- 4.4. Final Examination Guidelines
 - 4.4.1. Exam organization and timelines
 - 4.4.2. Final examining committee
 - 4.4.3. External examiner or reader
 - 4.4.4. Exam procedure

4.1. Program Requirements

4.1.1. Course requirements

Course requirements for the PhD will be based on the student's previous training and anticipated needs in the student's area of specialization, and the total course load will be at the discretion of the student's supervisory committee. All students in the PhD program must take REN R 603 and either REN R 604 or REN R 605. Otherwise there is no fixed minimum course requirement for students who hold a master's degree.

Students entering the PhD program, **who do not have a master's degree**, will have to fulfil the MSc coursework requirements: REN R 603 and REN R 604 or REN R 605 plus ★6 at the 500- or 600-level. Additional courses may be required at the discretion of the student's supervisor. Course work should include at least ★2 in research methods, statistics, and/or experimental design, which may be taken at the undergraduate of 700-

level, but in that case will not count toward the ★6 course requirement at the 500- or 600-level. Courses may be drawn from those listed for the Department of Renewable Resources, and from other Departments within the University.

4.1.2. Thesis requirements

All candidates for the PhD must prepare an acceptable thesis presenting the results of their research. A doctoral thesis must embody the results of original investigations and analyses and be of such quality as to merit publication, meeting the standards of reputable peer-reviewed scientific journals. Furthermore, it must constitute a substantial contribution to the knowledge of the candidate's field of study. For more details on Departmental expectations for PhD theses, see Section 2.4 of the graduate handbook. Candidates will be examined orally on their thesis results by an examining committee (see Section 2.5 and below for more details).

4.1.3. General requirements

Throughout their program, students must remain in good academic standing, and they must complete the Professional Development and Ethics requirements of the University of Alberta. For more details refer to Section 2 of this handbook.

4.1.4. Residency requirements

Over the duration of their program, students in a doctoral program must pay the equivalent of at least three full years of program fees. The minimum residence requirements are three academic years of study and research for a student with a bachelor's degree, and two academic years of study and research for those with a master's degree. The time required to complete the PhD will vary according to the previous training of the applicant and the nature of the research undertaken. However, the typical length of PhD programs is four years in the Department.

4.1.5. Program timelines

Students must pass a candidacy assessment within two years (see below for details) Candidates must complete all program requirements within six years of the term in which they first register in the program. In the case of master's students who are reclassified as candidates for a doctoral degree, a candidacy exam must be scheduled within one year of changing to a PhD program, and all degree requirements must be completed within six years of the time they first register as a master's student, not including any time spent as a qualifying graduate student.

4.1.6. Supervisory Committee

A PhD supervisory committee will normally consist of the supervisor plus two committee members. Supervisory committee members may be U of A Faculty, defined as tenured, tenure-track, retired faculty member, or a Faculty Service Officer (current or retired

categories A1.1, A1.3, or current category C1.1, as per the University's Definition and Categories of Academic Staff and Colleagues). Postdoctoral fellows and research associates are not eligible to serve on supervisory committees. The second committee member may be appointed as co-supervisor to indicate a higher level of involvement than usual in the student's research project.

The Department also allows **one supervisory committee member** to be a faculty member from another educational institution, an adjunct Professor, a collaborator from the private sector, the government or an NGO. A non-U of A committee member must be expert in the field of the student's thesis research, capable of providing advice equivalent to that from a U of A faculty member. A non-U of A supervisory committee member counts towards the minimum number of examiners required by FGSR, but U of A faculty members (as defined above) must outnumber non-U of A committee members at exams.

The supervisory committee should be established by the supervisor **within the first six months** in consultation with the student. Supervisors must formally establish the supervisory committee by submitting this form to the Graduate Administrator. Supervisors are also responsible to schedule **annual committee meetings**, and submit a progress report form to the Graduate Administrator.

4.2. Pre-Candidacy Assessment

Supervisors may request a Pre-Candidacy Assessment for PhD students who either fall below a GPA of 3.0 in their coursework, or who in other ways do not show satisfactory academic progress. This assessment is optional at the request by the supervisor and in consultation with the graduate coordinator.

The purpose of the Pre-Candidacy assessment is to provide an early evaluation of the student's knowledge and written and verbal communication skills, with the view of providing the student with a frank prognosis of the likelihood of successful completion of a PhD program in the student's field of study.

The format of the assessment is the same as for the candidacy examination (see Section 2.5 of the graduate handbook), but may be shortened and simplified:

- Normally, the graduate coordinator will chair the Pre-Candidacy Assessment.
- The student should provide a brief research proposal (approximately 1500 words) as a writing sample to the committee and chair, one week before the assessment.
- The student should prepare a brief presentation of their intended research (10-15 minutes at the beginning of the exam).
- Subsequently, the supervisory committee members will question the student on topic areas relevant to their thesis research.

The result of the Pre-Candidacy Assessment shall be drafted by the chair, edited and approved by the committee, sent to the student in writing, and added to the student's file. The report should summarize the student's strengths and weakness, make suggestions for addressing weakness (e.g., courses to be taken), and state any concerns regarding the student's ability to successfully complete the program.

4.3. Candidacy Exam Guidelines

4.3.1. *Purpose and timing*

For candidacy examinations, students must demonstrate to the satisfaction of the examining committee that they possess an adequate knowledge of the discipline and of the subject matter relevant to the thesis and the ability to pursue and complete original research at an advanced level leading to a doctoral degree. The student will be evaluated based on a written candidacy statement, a research presentation, and an oral examination. The candidacy exam will be held within two years of first registration in the PhD program or within one year of switching from an MSc to a PhD program. Dates of Candidacy Examinations are determined between the student, the supervisor, and the supervisory committee.

4.3.2. *Exam preparation*

Students should familiarize themselves with the literature relevant to their thesis, general principles of scientific inquiry, and practice communicating this knowledge.

- Long-term preparation may include taking graduate-level courses with in-depth treatment of subject matter relevant to the student's area of interest.
- Students should consult the supervisory committee for suggested readings from the scientific literature that provide relevant background and context for the thesis research.
- Preparing a written literature review that critically examines and synthesizes previous research is a good exercise. This may form a basis for introductory sections of the thesis and the candidacy statement (see below).
- The student can consult with examiners about the general areas of questioning. Some examiners may suggest readings from journals or textbooks.
- It is useful to hold a mock exam (usually organized by the supervisor with the lab group) to practice giving a research presentation and answering questions in front of an audience.
- Students should be familiar with the examination process outlined in Section 2.5 of the graduate handbook and may consult with the supervisor or chair if there are any questions or concerns.

4.3.3. *Candidacy statement and CV*

The student must prepare a written document that outlines their thesis research and a brief academic CV listing previous education, publications, conference contributions, courses and grades of the current program. The two documents must be provided to all members of the examining committee at least one week prior to the exam. The purpose

is to provide examiners with information on the student's background, give them an understanding of the thesis research, and provide the opportunity for an assessment of the student's ability to communicate in written form. The department recommends the following format for the candidacy statement:

- Title and summary of the thesis proposal (~250 words).
- A general introduction providing a review of the relevant literature and an overall rationale for the proposed research (~1000 words).
- An objectives section that explains the overarching thesis goals, followed by specific objectives/hypotheses/questions that are addressed in each data chapter (500 words).
- Sections for each data chapter that include a title, summary, introduction, objective, methods and preliminary results where applicable (500-1500 words each, depending on how well the chapters are developed).
- A Gantt chart that shows progress to date and timelines for thesis completion with a brief explanation.
- The recommended total length of a candidacy statement is ~5000 words, plus ~50 references, plus 5-10 figures and tables, i.e. similar in scope to a typical journal paper.

4.3.4. Candidacy exam organization

At least three weeks prior to the final oral examination the following steps should be completed:

- The supervisor finds two additional arms-length examiners, an exam chair, and schedules the exam.
- The supervisor notifies the Graduate Administrator with the exam information (committee composition, date, time, place).
- The Graduate Administrator completes and submits an Examining Committee & Examination Dates form to FGSR for approval.

4.3.5. Candidacy exam committee

The oral examining committee consists of the supervisory committee plus two additional arms-length exam committee members:

- In total, there should be at least five examiners. The majority of examiners (normally 4 of 5) must be U of A Faculty, defined as tenured, tenure-track, retired faculty member, or a Faculty Service Officer (current or retired categories A1.1, A1.3, or current category C1.1, as per the University's Definition and Categories of Academic Staff and Colleagues).
- The arm's-length examiners may be from within the Department or from other Departments within the University. For a definition of 'arm's-length examiner', see section 3.2.2 of this manual.
- All members must attend the examination, and it is recommended no more than one member attend the examination by video conference or teleconference call. Examiners participating in examinations by this means are considered to be in attendance. Only under exceptional circumstances and with approval by the graduate coordinator may the supervisor attend remotely.

- The exam must be chaired by a faculty member from inside the Department who is a member of the Departmental Graduate Program Committee. If no member is available to serve, then an experienced faculty member from inside the Department may chair the exam. The chair cannot serve as examiner.
- The exam may be held at locations other than the University of Alberta. Guests are not permitted during the exam.

4.3.6. Candidacy exam procedure

The oral examination will be chaired by a current or former member of the departmental Graduate Committee and will be conducted in accordance with the general guidelines for examinations as described in Section 2.5 of the handbook. The exam starts with the committee chair reviewing the student's academic record, including course work, publications, scholarships and other awards. Subsequently, the student will deliver a brief (15 min) oral presentation outlining the area of their thesis research and their progress to date. It is natural that questions will arise out of the presentation and the candidacy statement and the student should explain and defend the proposed research. However, exam questions should also test the student's general scientific abilities and foundational knowledge of their discipline relative to the proposed research.

4.3.7. Candidacy exam outcome

Agreement on the candidacy exam outcome is reached, when all or all but one of the examiners agree to an outcome of **Pass**, **Conditional pass**, or **Fail and terminate/change program**, or when a majority of examiners agrees to an outcome of **Adjourned** or **Fail and repeat**. If no agreement can be reached, the Department will refer the matter to the Associate Dean, FGSR, who will determine an appropriate course of action. The possible outcomes are explained in detail below.

- **Pass:** If the student passes the candidacy examination, the department should complete the Report of Completion of Candidacy Examination form and submit it to the FGSR.
- **Conditional Pass:** If the candidacy examining committee agrees to a conditional pass for the student, the chair of the examining committee, with input from all exam committee members, will provide **in writing** within five working days to the Dean, FGSR, and the student via the Graduate Administrator:
 - the reasons for this recommendation,
 - the details of the conditions,
 - the timeframe for the student to meet the conditions,
 - the approval mechanism for meeting the conditions (e.g. approval of the committee chair or supervisor, or approval of the entire committee, or select members of the committee), and
 - the supervision and assistance the student can be expected to receive from committee members. Conditions are subject to final approval by the Dean, FGSR.

At the deadline specified for meeting the conditions, two outcomes are possible:

- All the conditions have been met. In this case, the department will complete the Report of Completion of Candidacy Examination form and submit it to the FGSR; or
- Some of the conditions have not been met. In this case, the outcome of the candidacy examination is a Fail, and the options below are available to the examining committee. Note that the options are different after a failed second candidacy examination.
- **Adjourned:** The candidacy examination should be adjourned in the event of compelling, extraordinary circumstances such as a sudden medical emergency taking place during the examination or possible offences under the Code of Student Behaviour after the examination has started. The committee chair will provide the reasons for this recommendation to the department.
- **Fail:** If the candidacy examining committee agrees that the student has failed, the committee chair will provide the reasons for this recommendation to the department. The graduate coordinator will then provide this report, together with the department's recommendation for the student's program, to the Dean, FGSR, and to the student. For failed candidacy examinations, an Associate Dean, FGSR, normally arranges to meet with the student and others as required before acting upon any department recommendation. The options available to the examining committee when the outcome of a student's candidacy exam is "Fail" are:
 - **Repeat the Candidacy:** If the student's first candidacy exam performance was inadequate but the student's performance and work completed to date indicate that the student has the potential to perform at the doctoral level, the examining committee should consider the possibility of recommending that the student be given an opportunity to repeat the candidacy exam. Normally, the composition of the examining committee does not change for the repeat candidacy exam. If the recommendation of a repeat candidacy is formulated by the examining committee and approved by the FGSR, the student and graduate coordinator are to be notified in writing of his or her exam deficiencies by the chair of the examining committee. The second candidacy exam is to be scheduled no later than six months from the date of the first candidacy. In the event that the student fails the second candidacy, the examining committee shall recommend one of the following two options to the department:
 - **Change of Category to a Master's Program:** This outcome should be considered if the student's candidacy examination performance was inadequate and the student's performance and work completed to date indicates that the student has the potential to complete a master's, but not a doctoral, program; or
 - **Termination of the Doctoral Program:** If the student's performance was inadequate, and the work completed during the program is considered inadequate, then the examining committee should recommend termination of the student's program.

4.4. Final Examination Guidelines

4.4.1. Exam organization and timelines

Preparation for the final PhD examination is fairly complex and the Department recommends the following steps and timelines:

- The supervisor must organize a supervisory committee meeting prior to the exam, where a draft document of the thesis can be reviewed and discussed, usually about **3-6 months** before the exam. The Graduate Student Progress Report form should indicate that research progress is satisfactory and that preparations for the final exam may commence.
- Approximately **3 months** prior to the exam, the supervisor may confirm the availability of committee members to review and approve a defense version of the thesis, and contact potential arms-length and external examiners to confirm their general availability. The external examiner should be a recognized authority in the student's disciplinary area and an experienced supervisor of doctoral students. The student is not allowed to have contact with the external examiner prior to the exam.
- Approximately **10 weeks** before the exam, the student circulates a defense version of the thesis to the supervisory committee for preliminary acceptance. The defense version must conform to FGSR minimum guidelines for thesis formatting and must have all prefatory pages including a preface that describes the student's and collaborator's contributions to the research. The preliminary acceptance is critical to protect and uphold the reputation of the Department and the University and ensure that arms-length and external examiners are not asked to invest time reading a thesis that is substandard.
- Approximately **8 weeks** prior to the exam date, the supervisor collects written statements from the committee members that the thesis is ready to be sent to the external examiner in its current form (emails forwarded to the Graduate Administrator suffice). The supervisor also completes an Approve External Reader or Examiner form and forwards an academic CV from the proposed external to the Graduate Administrator.
- No later than **6 weeks** prior to the exam date, the supervisor notifies the Graduate Administrator with the exam information (committee composition, date, time, place).
- As soon as the External is approved by FGSR and no later than **4 weeks** prior to the exam, the supervisor or the student send the final defense version of the thesis to all examining committee members, including the chair.
- About **1 week** prior to the exam, the supervisor should confirm with the external examiner or reader that an assessment has been sent to the Graduate Coordinator as instructed by FGSR, and remind the external that the report and/or questions should not be revealed to the supervisor or student prior to the exam.

4.4.2. Final examining committee

The examining committee shall consist of the supervisory committee plus two additional examiners (either the external and one arms-length examiner, or two arms-length examiners if the thesis is evaluated by an external reader who does not attend).

- In total, there should be at least five examiners. The majority of examiners (normally 3 of 5) must be U of A Faculty, defined as tenured, tenure-track, retired faculty member, or a Faculty Service Officer (current or retired categories A1.1, A1.3, or current category C1.1, as per the University's Definition and Categories of Academic Staff and Colleagues).
- The external examiner or reader must be from outside the University and should have no current or previous associations with the student, the supervisor, or the Department. External examiners will be approved by the Associate Dean, Graduate Studies.
- The arm's-length examiner(s) will be approved by the Associate Dean, Graduate Studies. For a definition of 'arm's-length examiner' see section 3.2.2 of this manual.

- Arm's length examiners who have served on a student's candidacy examination committee do not lose their arm's length status as a result, and are eligible to serve as arm's length examiners on the student's doctoral final examination if the other conditions of being arm's length remain unchanged.
- All members must attend the examination, it is recommended no more than one member attend the examination by video conference or teleconference call. Examiners participating in examinations by this means are considered to be in attendance. Only under exceptional circumstances and with approval by the graduate coordinator may the supervisor attend remotely.
- The exam must be chaired by a faculty member from inside the Department who is a member of the Departmental Graduate Program Committee. If no member is available to serve, then an experienced faculty member from inside the Department may chair the exam. The chair cannot serve as examiner.
- The exam may be held at locations other than the University of Alberta. Guests are not permitted during the exam.

4.4.3. External examiner or reader

The term external examiner refers to an external that attends the examination, whereas the external reader provides a written evaluation of the thesis and written questions to be asked during the examination. The external must be a recognized authority in the specific field of research of the student's thesis, has to be experienced in evaluating doctoral work, and must not have an association with the student, supervisor or co-supervisor that could be perceived to hinder an objective evaluation (e.g. as former student, supervisor, collaborator or coauthor). The external should not have served as external for the Department in the least two years or have other close ties to the Department.

An external reader will provide an evaluation of the scope, structure, methodology, and findings of the thesis, a list of minor errors, and either a list of questions to be posed to the candidate, or a brief written commentary of the thesis which can be read to the candidate for response during the examination. The questions or commentary will be made available to the student or supervisor for the first time during the examination and the committee will evaluate the student's answers as part of the examination. The external reader places the thesis into one of the following two categories: (1) acceptable with minor or no revisions or (2) Unacceptable without major revisions.

An external examiner attends the examination in person or by video conference (preferred) or teleconference call, and provides the Graduate Coordinator at least one week in advance of the examination with a preliminary evaluation, placing the thesis into one of the following three categories (1) acceptable with minor or no revisions, (2) reserve judgment until after the examination, or (3) unacceptable without major revisions.

4.4.4. Exam procedure

All students completing the PhD program are required to deliver a seminar presenting their thesis research prior to the thesis defense. Normally, the seminar is presented just

before the final oral exam so that all exam committee members are able to attend. A final oral examination, based largely on the thesis, shall be conducted by the examining committee in accordance with the general guidelines for examinations described in Section 2.5 of the handbook. If an external reader provides a written evaluation and questions, the committee chair starts the exam by briefly summarizing the external reader's report and conveying the questions or commentary for the candidate's response.

4.4.5. Exam outcome

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. Agreement on the exam outcome is reached, when all or all but one of the examiners agree to an outcome of **Pass**, **Pass subject to revisions**, or **Fail**, or when a majority of examiners agrees to an outcome of **Adjourned**. If no agreement can be reached, the Department will refer the matter to the Associate Dean, FGSR, who will determine an appropriate course of action. The possible outcomes are explained in detail below:

In case of an outstanding thesis, the exam committee may nominate the student for a Departmental **Outstanding PhD Thesis Award**. Nominations should be ~500 words and mention thesis-based publications, explain scientific contributions or applied value of the research, and point out exceptional seminars or exam performances. Nominations should be made by the exam chair with input from the supervisor and examination committee immediately following the defense. Submit the nomination together with exit-exam paperwork to the Graduate Administrator.

- **Pass:** The student has satisfactorily defended the thesis and suggestions for revisions are editorial in nature and at the discretion of the student. The department submits a completed Thesis Approval/Program Completion form to the FGSR. If one of the examiners fails the student, that examiner does not have to sign this form.
- **Pass Subject to Revisions:** The student has satisfactorily defended the thesis but the revisions to the thesis are sufficiently minor that it will not require a reconvening of the examining committee. If the examining committee agrees to a "Pass subject to revisions" for the student, the chair of the examining committee must provide in writing, within five working days of the examination, to the Dean, FGSR, the graduate coordinator and the student:
 - the reasons for this outcome,
 - the details of the required revisions,
 - the approval mechanism for meeting,
 - the requirement for revisions (e.g., approval of the examining committee chair or supervisor, or approval of the entire examining committee, or select members of the committee), and
 - the supervision and assistance the student can expect to receive from committee members.

The student must make the revisions within six months of the date of the final examination. Once the required revisions have been made and approved, the department should submit a completed Thesis Approval/Program Completion form to the FGSR indicating "pass subject to

revisions". If the required revisions have not been made and approved by the end of the six months deadline, the student will be required to withdraw.

Adjourned: An adjourned examination is one that has been abandoned officially. The final examination should be adjourned in the following situations:

- The revisions to the thesis are sufficiently substantial that it will require further research or experimentation or major reworking of sections, or if the committee is so dissatisfied with the general presentation of the thesis that it will require a reconvening of the examining committee. In such circumstances the committee cannot pass the student, and must adjourn the examination.
- The committee is dissatisfied with the student's oral presentation and defence of the thesis, even if the thesis itself is acceptable with or without minor revisions.
- Compelling, extraordinary circumstances such as a sudden medical emergency taking place during the examination.
- Discovery of possible offences under the Code of Student Behaviour after the examination has started.

If the examination is adjourned, the committee should:

- Specify in writing to the student, with as much precision as possible, the nature of the deficiencies and, in the case of revisions to the thesis, the extent of the revisions required. Where the oral defence is unsatisfactory, it may be necessary to arrange some discussion periods with the student prior to reconvening the examination.
- Decide upon a date to reconvene. If the date of the reconvened examination depends upon the completion of a research task or a series of discussions, it should be made clear which committee members will decide on the appropriate date to reconvene. This new examination must be held within six months of the initial examination.
- Make it clear to the student what will be required by way of approval before the examination is reconvened (e.g. approval of the committee chair or supervisor, approval of the entire committee, or of select members of the committee).
- Specify the supervision and assistance the student may expect from the committee members in meeting the necessary revisions.
- Advise the Dean of the department's Faculty following the procedures established for this purpose.
- Advise the FGSR in writing of the adjournment and the conditions.
- When the date is set for the adjourned final examination, the department will notify the Dean of the department's Faculty and the FGSR. Normally, a Pro Dean attends the examination.
- **Fail:** If the examination result is a Fail, no member of the examining committee signs the Thesis Approval/Completion form. When the outcome is a Fail, the committee chair will provide the reasons for this decision to the graduate coordinator. The department will then provide this report, together with its recommendation for the student's program, to the Dean of the department's Faculty, the FGSR, and to the student. An Associate Dean, FGSR will normally arrange to meet with the student and with the graduate coordinator before acting upon any department recommendation that affects the student's academic standing.

5. Program Requirements: Master of Forestry

In this section:

- 5.1. Program Requirements
 - 5.2. Career Paths
 - 5.3. Scholarships and financial support
 - 5.4. Study Plan
 - 5.5. Role of Advisors
 - 5.6. Capping Research Project
-

5.1. Program Requirements

The Master of Forestry program is a course-based program for students wishing to obtain a post-graduate education in forestry. The normal admission requirement is a BSc in Forestry or a BSc in an allied discipline such as Geography, Biological Sciences, Agriculture or Environmental and Conservation Sciences. The program consists of *30 at the graduate level (500 number or higher). Each student's program will include REN R 906 (a project equivalent to *6) or REN R 912 (a project equivalent to *12), and courses chosen in consultation with the supervisor and the Associate Chair (Graduate Programs) relevant to the topic of the project and within the general realm of forestry.

Throughout their program, students must remain in good academic standing, and they must complete the Professional Development and Ethics requirements of the University of Alberta. For more details refer to Section 2 of this handbook.

5.2. Career Paths

The Master of Forestry program is designed for students pursuing a career in forest science and management. A study plan can be developed to partially fulfill requirements to become a Registered Professional Foresters working in government or industrial organizations or as consultants in Canada. The program is targeted towards:

- Graduates of North American undergraduate forestry programs looking to update their knowledge and obtain an advanced degree in integrated forest management.
 - Graduates of an Environmental or Conservation Sciences programs who want to pursue job opportunities in sustainable forest management.
 - International students with a forestry background who wish to broaden their education with a Canadian degree in sustainable forest management.
 - The program can be taken as part of an international 2-year Master program leading to dual degrees in Forestry at a European and a Canadian institution.
-

5.3. Scholarships and financial support

Students who enroll in this program are usually self-funded. Typical program costs estimates are provided by FGSR. However, some limited scholarship opportunities exist: For students who are pursuing a Registered Professional Forester designation, the College of Alberta Professional Foresters provides \$2,500 Graduate Scholarships that are awarded based on merit. For students who pursue an international dual degree through the TRANSFOR-M program, the University Alberta International provides Education Abroad Individual Awards of \$3,750 based on merit. Outstanding applicants may be nominated by the Department for a Course-Based Master's Recruitment Scholarship valued at \$17,000 plus tuition.

5.4. Study Plan

The program is designed to be completed in 16 to 20 months. However, with a heavier than normal course load, the program can be completed in 10 months, or it may be completed on a part-time basis over a maximum period of 6 years.

Under a 16 to 20 months study plan, students take *9 in the first fall and winter term each, optionally a directed study course *3 REN R 501 in the spring or summer term, and complete the remaining courses and a *6 REN R 906 capping research project in the subsequent fall term (grade submission end of Dec) or winter term (grade submission end of April).

Under a 10 to 12 months study plan, students take *12 in the fall and winter term each, and complete their *6 REN R 906 capping research project in the spring term (grade submission end of June) or summer term (grade submission end of Aug).

5.5. Role of Advisors

Each course-based masters student has an assigned advisor, who helps with the development of a study plan, selection of courses, and grading of a capping research project. An advisor to a course-based master student does not normally provide funding. Upon completion of coursework and research, the advisor has to sign a form of completion of a course based Masters program. The submission deadlines are Jan 31st and Sep 30th for spring and fall convocation, respectively.

5.6. Capping Research Project

The capping research project should have a limited-scope original research component as outlined in the RENR 906 course description. There are no specific guidelines for the

research report, but we recommend a traditional format with Title Page, Table of Contents, Abstract, Introduction, Literature Review, Methods, Results, Discussion, References, and Acknowledgements. There are no length requirements, but we suggest approximately 8,000-12,000 words for the main text, plus 40-80 references. The advisor should not be actively involved in the analysis or editing of the capping research project report, but should provide general scientific and writing advice on draft versions.

6. Program Requirements: Master of Agriculture

In this section:

- 6.1. Program Requirements
- 6.2. Career Paths
- 6.3. Scholarships and financial support
- 6.4. Study Plan
- 6.5. Role of Advisors
- 6.6. Capping Research Project

6.1. Program Requirements

The Master of Agriculture program is a course-based program for students wishing to obtain a post-graduate education in agriculture. The normal admission requirement is a BSc in Agriculture or a BSc in an allied discipline such as Geology, Biological Sciences, Forestry or Environmental and Conservation Sciences. The program consists of *30 at the graduate level (500 number or higher). Each student's program will include REN R 906 (a project equivalent to *6) or REN R 912 (a project equivalent to *12), and courses chosen in consultation with the supervisor and the Associate Chair (Graduate Programs) relevant to the topic of the project and within the realm of agriculture.

Throughout their program, students must remain in good academic standing, and they must complete the Professional Development and Ethics requirements of the University of Alberta. For more details refer to Section 2 of this handbook.

6.2. Career Paths

The Master of Agriculture program is designed for students pursuing a career in sustainable agriculture, soil sciences, or land reclamation. A study plan can be developed to partially fulfill requirements to become a Registered Professional Agrologist or a Registered Technologists in Agrology, working in government or industrial organizations or as consultants. The program is normally completed within one year, but may be taken on a part-time basis. The program is targeted towards:

- Graduates of North American undergraduate programs in agricultural or soil sciences, looking to update their knowledge and obtain an advanced degree in agriculture for professionals.
 - Graduates of undergraduate programs in environmental management who wish to enhance their skill set through a wide selection of courses focusing on reclamation, remediation, and restoration of land and water.
 - International students with an agriculture, soil sciences or environmental management background who wish to broaden their education with a Canadian degree with a major focus on sustainable agriculture, soil science, or land reclamation.
 - The program can be taken as part of an international 2-year Master program leading to dual degrees in Agriculture or Environmental Management at a European and a Canadian institution.
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6.3. Scholarships and financial support

Students who enroll in this program are usually self-funded. Typical program costs estimates are provided by FGSR. However, some limited scholarship opportunities exist: For students who pursue an international dual degree through the TRANSFOR-M program, the University Alberta International provides Education Abroad Individual Awards of \$3,750 based on merit. Outstanding applicants may be nominated by the Department for a Course-Based Master's Recruitment Scholarship valued at \$17,000 plus tuition.

6.4. Study Plan

The program is designed to be completed in 16 to 20 months. However, with a heavier than normal course load, the program can be completed in 10 months, or it may be completed on a part-time basis over a maximum period of 6 years.

Under a 16 to 20 months study plan, students take *9 in the first fall and winter term each, optionally a directed study course *3 REN R 501 in the spring or summer term, and complete the remaining courses and a *6 REN R 906 capping research project in the subsequent fall term (grade submission end of Dec) or winter term (grade submission end of April).

Under a 10 to 12 months study plan, students take *12 in the fall and winter term each, and complete their *6 REN R 906 capping research project in the spring term (grade submission end of June) or summer term (grade submission end of Aug).

6.5. Role of Advisors

Each course-based masters student has an assigned advisor, who helps with the development of a study plan, selection of courses, and grading of a capping research project. An advisor to a course-based master student does not normally provide

funding. Upon completion of coursework and research, the advisor has to sign a form of completion of a course based Masters program. The submission deadlines are Jan 31st and Sep 30th for spring and fall convocation, respectively.

6.6. Capping Research Project

The capping research project should have a limited-scope original research component as outlined in the RENR 906 course description. There are no specific guidelines for the research report, but we recommend a traditional format with Title Page, Table of Contents, Abstract, Introduction, Literature Review, Methods, Results, Discussion, References, and Acknowledgements. There are no length requirements, but we suggest approximately 8,000-12,000 words for the main text, plus 40-80 references. The advisor should not be actively involved in the analysis or editing of the capping research project report, but should provide general scientific and writing advice on draft versions.

7. Program Requirements: MBA/Master of Forestry

In this section:

- 7.1. Application
- 7.2. Entrance Requirements
- 7.3. Program Requirements
- 7.4. Length of Program

7.1. Application

Departments in the Faculty of Agricultural, Life & Environmental Sciences (ALES) and the School of Business (Business) offer a program of joint study that enables students to earn both the MBA and MF degrees after two calendar years of full-time study. Applicants must submit an application form to the Associate Dean, MBA Programs in the School of Business. A letter indicating the intention to apply to the MBA/MF program and including a statement of the applicant's forestry specialization, background and interests should also be enclosed.

7.2. Entrance Requirements

Normally only students with a BSc degree in Forestry with at least 2 years relevant professional experience will be admissible to this program. Applicants must follow the admission procedures and meet the admission requirements of both Business and the Department of Renewable Resources. All applicants are required to have a Graduate Management Admission Test (GMAT) test score of 550 and all students for whom English is not their native language must have a minimum Test of English as a Foreign

Language (TOEFL) score of 600 (paper-based) or 250 (computer-based). Admission will be recommended only for those students judged to have the ability and motivation to handle the significant demands of the program.

7.3. Program Requirements

- *30 required core MBA courses
- Three *3 elective MBA courses
- Two *3 graduate elective courses (Business or AFHE)
- REN R 601 and 602 and 3 other approved *3 graduate-level Forestry courses
- SMO 641 Business Strategy

Students who decide to transfer out of the joint program into the regular MBA or MF program will have to apply and meet the full degree requirements of that program.

7.4. Length of Program

Students enrolled in the joint program on a full-time basis can complete the program in two calendar years. Students may undertake the joint program on a part-time basis. The duration of the total program must not exceed six consecutive calendar years.

8. Program Requirements: MBA/Master of Agriculture

In this section:

- 8.1. Application
 - 8.2. Entrance Requirements
 - 8.3. Program Requirements
 - 8.4. Length of Program
-

8.1. Application

The Departments in the Faculty of Agricultural, Life & Environmental Sciences and Business offer a program of joint study that enables students to earn both the MBA and MAg degrees after two calendar years of full-time study. Applicants must submit an application form to the Associate Dean, MBA Programs in Business. A letter indicating the intention to apply to the MBA/MAg program and including a statement of the applicant's agricultural specialization, background and interests should also be enclosed.

8.2. Entrance Requirements

Normally only students with a BSc degree in agricultural-related discipline with at least 3 years relevant professional experience will be admissible to this program. Applicants must follow the admission procedures and meet the admission requirements of both Business and the Department of Renewable Resources. All applicants are required to have a GMAT test score of 550 and all students for whom English is not their native language must have a minimum TOEFL score of 600 (paper-based) or 250 (computer-based). Admission will be recommended only for those students judged to have the ability and motivation to handle the significant demands of the program.

8.3. Program Requirements

- *30 required core MBA courses
- Two *3 elective MBA courses
- Two *3 graduate elective courses (Business or AFHE)
- Five *3 approved graduate-level courses in agricultural-related disciplines
- SMO 641 Business Strategy
- A *3 project in agriculture with a significant business component

Students who decide to transfer out of the joint program into the regular MBA or MAg program will have to apply and meet the full degree requirements of that program.

8.4. Length of Program

Students enrolled in the joint program on a full-time basis can complete the program in two calendar years. Students may undertake the joint program on a part-time basis. The duration of the total program must not exceed six consecutive calendar years.

9. Conflict Resolution

This section points to important University of Alberta policies, procedures and resources available to graduate students to resolve potential conflicts and problems that may arise during their program.

In this section:

- 9.1. Supervisory Breakdown
 - 9.2. Academic Misconduct
 - 9.3. Conflict of Interest Policies
 - 9.4. Discrimination, Harassment and Duty to Accommodate
-

9.1. Supervisory Breakdown

Conflicts should be resolved as close to the source as possible. **Students** and **Supervisors** are encouraged to address any issues promptly and informally. The supervisor should document the discussions and keep a record of any agreements made. In the event of a conflict that resists immediate resolution, the student and/or the supervisor may approach the graduate coordinator for advice. The **Graduate Coordinator** is responsible for arranging informal consultation and mediation. The graduate coordinator or the parties involved may request advice and/or mediation assistance from the **Associate Dean Research and Graduate Studies** of the Faculty of ALES.

If conflicts continue to persist, any party may seek the advice of the the **Faculty of Graduate Studies and Research** (FGSR). When FGSR becomes aware of a supervisory breakdown, an Associate Dean of FGSR reaches out to the student and invites her/him to a meeting to discuss the issue. Students may enlist the **Student Ombudservice** to represent them at any meeting with Department and/or FGSR representatives. It is important to note that neither students nor supervisors shall be required to participate in informal resolution against their wishes.

If informal resolution is unsuccessful or inappropriate, and the Graduate Coordinator determines that the supervisor-student relationship is beyond repair, the Department will attempt in good faith to work with the student to find alternative supervision within the department, and will keep the FGSR and the Faculty of ALES apprised of these efforts. If the best arrangements of the department and the FGSR fail to meet the expectations of the student, the student may choose to withdraw without prejudice.

If the student refuses to accept the supervision provided, or if no supervision can be secured, then the student is not fulfilling the academic requirement of having a supervisor and may, on academic grounds, be required to withdraw. Where the supervisor has been providing funding to the student, the funding should continue for a period of at least 30 days from the date on which the Graduate Coordinator determines that the supervisor-student relationship is beyond repair.

9.2. Academic Misconduct

The University of Alberta places a very high value on academic integrity. The Code of Student Behaviour (COSB) outlines what students are prohibited from doing and provides the rationale for those rules, noting that the value of our degree depends upon the integrity of the teaching and learning process.

If an instructor suspects inappropriate academic behavior in the context of **student course work**, they meet with the student to determine whether or not an offence has been committed. Before the meeting, they inform the student of the purpose of the meeting. The advice or presence of the **Graduate Coordinator** may be requested by

either the student or the instructor/supervisor. The instructor does not have the authority to impose any disciplinary measures, such as grade reductions or extra assignments. Instead the instructor recommends a sanction to the **Associate Dean Research and Graduate Studies** of the Faculty of ALES. The Associate Dean meets with student to investigate the allegations and determines grade sanction or other disciplinary actions in accordance with the Code of Student Behaviour, which is communicated in writing to the student and instructor.

Regarding academic integrity related to **thesis research by graduate students**, the University of Alberta's Research and Scholarship Integrity Policy (RSIP) outlines detailed and thorough procedures for reviewing allegations of academic misconduct, as well as a discussion of how the policy intersects with the Code of Student Behaviour. Supervisors, exam committee members or other faculty members must refer the matter to the Faculty of Graduate Studies and Research. An **Associate Dean of Graduate Studies and Research** meets with student to investigate the allegations and determines disciplinary actions in accordance with the Code of Student Behaviour, which is communicated in writing to the student and supervisor.

Regarding academic integrity related to **research and publication by postdocs, faculty and staff**, the University of Alberta's Research and Scholarship Integrity Policy (RSIP) outlines detailed and thorough procedures for reviewing allegations of academic misconduct. **Any person** who believes that misconduct under the Research and Scholarship Integrity Policy has been committed may lodge a complaint by submitting a written account of the alleged offense to the **Provost**. The Provost or the Vice-President (Research) will also investigate credible anonymous complaints.

9.3. Conflict of Interest Policies

A conflict of interest is a situation where professional judgment, decisions or actions may be (or could be perceived to be) unduly influenced by private interests. To make informed and sound decisions pertaining to matters of conflict of interest, the University of Alberta Policies and Procedures On-Line (UAPPOL) provides guidelines for various financial and personal conflict of interest situations.

Consensual faculty-student relationships carry risks of conflict of interest and breach of professional ethics. If personal and intimate relationships develop or exist between a student and a faculty member (e.g. dating, romantic, sexual or marriage), these must be immediately be addressed with consultation to conflict of interest guidelines (UAPPOL) and discussions with the **Department Chair**.

Even after resolving direct faculty-student conflict of interest situations (e.g. supervising, grading, or any other form of evaluation for admission, financial aid, graduation, etc.), the parties involved should be sensitive to the perceptions of others that a student who has a consensual relationship may receive preferential treatment from the faculty member or the faculty member's colleagues.

9.4. Discrimination, Harassment and Duty to Accommodate

All members of the University of Alberta community have a responsibility to promote a work, study and living environment free of discrimination and harassment as outlined in the University of Alberta's Discrimination, Harassment and Duty to Accommodate Policy.

Any person may make a written complaint to the **Provost** about the conduct of a supervisor or staff member under the Article 16 of the Trust/Research Academic Staff Agreement. All Article 16 complaint investigations are overseen by the Provost and governed by the terms of Faculty Agreement. Article 16 complaints are fully protected by confidentiality.

Similarly, students may be disciplined if they violate the Code of Student Behaviour. The policy document contains descriptions of unacceptable behaviour for Students in the University, the sanctions for commission of the offences, and explanations of the complete discipline and appeal processes.