



NRI
Natural
Resources
Institute

**Ph.D. in Natural Resources and
Environmental Management**

Thesis Process

Stages of Completion

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UM

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Environment, Earth, and Resources

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Ph.D. in Natural Resources and Environmental Management

Thesis Process

The degree of Doctor of Philosophy is granted only upon evidence of general proficiency and of distinctive attainment in a special field. In particular, a recognized ability for ***independent investigation*** must be demonstrated by the candidate in a thesis which embodies ***original research or creative scholarship*** and is presented with a high degree of ***literacy***. It is a research degree and is never conferred solely as a result of coursework study.

The thesis is therefore one of the requirements for the Doctor of Philosophy degree, Natural Resources and Environmental Management. These thesis process guidelines are intended to familiarize Ph.D. students and committee members with the thesis research process. These thesis process guidelines are supplementary to the [Faculty of Graduate Studies Thesis Guidelines](#).

1.0 Natural Resources Institute Overview

The Natural Resources Institute (NRI) at the University of Manitoba offers Master's and Ph.D. degrees in resource and environmental management. It was established in 1968 as a degree-granting, interdisciplinary unit with a threefold purpose, namely: (a) to teach management skills leading to a graduate degree of Master of Natural Resources Management (M.N.R.M.); (b) to conduct useful research on actual resource and environmental management problems; and (c) to provide a forum for examining problems in resource use, environmental sustainability, and management.

The Ph.D. program at the NRI was launched in 2001, as part of the Institute's expanded mandate to contribute to advancing theoretical and applied knowledge in the interdisciplinary fields of resources and the environment. The Ph.D. program prepares students to conduct independent research aimed at solving the complex theoretical and applied issues facing the world environment using a variety of approaches, tools and methods.

Ph.D. students in Natural Resources and Environmental Management (NREM) are required to:

- conduct original research;
- synthesize and communicate their findings and conclusions in a thesis; and
- demonstrate a contribution to the theory and practice of natural resources and environmental management.

Through student and faculty research, the Institute is involved in a wide range of natural resource and environmental management issues and problem areas. Research is conducted in conjunction with international agencies, national, provincial and local governments, business and private groups. Sources of the Institute's Ph.D. research support are wide ranging including national and international research funding agencies, client/interest groups, government departments, non-government organizations, and community-based organizations. Students are also financially supported by doctoral scholarships and fellowships from various sources, University of Manitoba Graduate Fellowships, and topical research projects of NRI faculty members.

The research process in general provides a valuable outreach function by bringing together university faculty and practising resource professionals. All thesis research conducted at the Institute is available to the public.

2.0 The Doctoral Thesis

The Ph.D. thesis at the Natural Resources Institute is an independently written research document resulting from an interdisciplinary research project that involves theoretical analysis of a topic or issue, practical application of strategies to address a topic or issue, or a combination of these two, in the areas of natural resources and environmental management. The thesis should show that the student has mastery of the specific field of natural resources and environmental management under investigation and is fully conversant with the relevant literature. The thesis should also demonstrate that the candidate has made a contribution to knowledge in the field of interest. The thesis may entail cooperation with agencies in the community at large and with other faculties at the U of M.

In general, the overall goal of the thesis is to build or apply theory through disciplined and focused independent study. Therefore, the thesis should be based on scholarly study and research that encompasses both theoretical and empirical aspects in the natural resources and environmental management fields, as defined in the [Mission Statement](#) of the Natural Resources Institute.

The purpose of the thesis is to:

- develop the student's skills and abilities to conduct independent theoretical and empirical/applied research in the natural resources and environmental management field;
- make original and creative contributions to advancing knowledge; and
- prepare a dissertation demonstrating a high degree of literacy and analytical skills.

3.0 The Doctoral Thesis Process

As part of the Ph.D. thesis research requirements, each student will:

- prepare a Ph.D. Thesis Research Proposal for committee approval;
- complete a Ph.D. Candidacy Examination;
- complete a first draft of their thesis and have it reviewed by their committee; and
- prepare and defend their Ph.D. Thesis.

The thesis research process has seven distinct stages. Please note that the timing of the seven stages may differ from student to student and that Stages 1 and 2 may occur in reverse order as decided on the advice the Advisor.

Stage 1 - Development and Approval of Thesis Research Proposal

Stage 2 - Candidacy Examination

Stage 3 - Field/Laboratory Research

Stage 4 - Data analysis and writing the Thesis First Draft

Stage 5 - Preparation of Final Thesis

Stage 6 - Oral Examination

Stage 7 - Thesis modifications as required and submission of Thesis to Graduate studies

Each of the preceding stages is described more fully in the material that follows.

STAGE 1 Development and Approval of Thesis Research Proposal

Synopsis:

Completion of the Ph.D. Thesis Research Seminar; development of the research proposal; [Ph.D. Program of Study and Appointment of Advisory Committee](#); first committee meeting to review and approve the [Ph.D. Thesis Proposal](#) (usually during the first 12-18 months); [ethics and animal care](#) committee approvals; and preparation for the [Candidacy Examination](#).

Thesis Advisory Committee

An Advisory Committee guides the student during the research process. The committee is formally appointed in writing by the NRI Director for each Ph.D. student. The Advisory Committee must consist of a minimum of three members of the Faculty of Graduate Studies, one of whom must hold a primary appointment from within NRI and one of whom must hold a primary appointment outside NRI. Committees may also include one guest member who has expertise in a related discipline/field but is not a member of the Faculty of Graduate Studies. The membership of the Committee, including the advisor, as well as any subsequent changes to it, must be approved by the Dean of the Faculty of Graduate Studies. The Advisor is the Chair of the Advisory Committee.

When the Advisory Committee is formed, the Faculty of Graduate Studies [Ph.D. Program of Study and Appointment of Advisory Committee](#) form and the [NRI Thesis Committee Data](#) form must be completed.

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 (no less than once a year) to review the student's progress and to report this progress to the Faculty of Graduate Studies on the annual [Progress Report](#) form.

The ultimate goal of the committee is to assist the student during the research process. The Institute faculty advisor is formally appointed by the Director based upon the student's stated research interest prior to his/her admission into the program. The faculty advisor provides on-going guidance to the student, directs the work of the committee, and calls and chairs selected meetings of the committee leading to the final oral examination of the thesis. At each stage of the research process, the student must submit draft material to their faculty advisor for review and make necessary changes prior to submission to the committee as a whole. In addition, the faculty advisor and the student are responsible for ensuring that all forms required by the Natural Resources Institute and the Faculty of Graduate Studies are duly and accurately completed.

Each student, working in close consultation with their faculty advisor, is responsible for co-ordinating committee meetings and for ensuring that committee members are informed by the NRI, in writing, of meeting date, time and location. **Submission of reports to the Advisory Committee must occur at least two weeks prior to any meeting.** Students should take into account committee members' schedules in arranging meeting dates. Once the student has identified an appropriate date and time, the faculty advisor and General Office should be notified two weeks in advance using the appropriate form so that proper arrangements for the meeting can be made (confirmation letters and seminar room booking).

If at any time during the research process the student feels a committee member is not fulfilling his/her role, the Director should be approached with the concern. If a student wishes to change faculty advisor at any time, written justification for such a change must be provided to the Director, or Associate Head, if the Director is the faculty advisor.

Development and Approval of Thesis Research Proposal

All Ph.D. students will be required to complete a minimum of 12 to a maximum of 21 credit hours of course work at the 7000 Level or above, beyond the Master's degree (or its equivalent), **preferably during the first 12 months.** A minimum of 6 credit hours of courses must be completed within the Natural Resources Institute and must include NRI 7310 Ph.D. Thesis Research Seminar. The Ph.D. Thesis Research Seminar is offered to assist students with the thesis research and proposal development process.

Changes in program of study, including withdrawal from individual courses or changes of course category, are permitted but only with the approval of the advisor and the Director of the Natural Resources Institute.

Concurrent with the coursework, each student will develop a thesis research proposal in consultation with their faculty advisor and Ph.D. Advisory Committee as the first step in the thesis research process at the NRI.

The proposal should include the following:

- Introduction and Literature Review, including:
 - Background or Rationale
 - Relevant theories
 - Management/conservation and/or policy implications
 - All of the above must be supported through logical argument and appropriate references to relevant academic literature
- Additional potentially important subsections (to be determined with committee):
 - Conceptual framework

- Purpose/Goal, Objectives, questions, and/or hypotheses
- Methods/Methodology
 - Required subsections:
 - Study design
 - Sampling methods or Coverage of study subjects
 - Analytical methods
 - Timeline
 - Budget
- Additional potentially important subsections (to be determined with committee):
- Philosophical worldview
- Study area
- Literature/References cited

Once the Advisor and student feel the proposal is completed, it must be submitted to the Director, or Associate Head for review before distribution to the committee. The advisor will call an Advisory Committee meeting to consider the adequacy of the proposal, at which time a student will give a 20-minute oral presentation and address questions from the committee. **Students must submit the written proposal to each member of the Advisory Committee at least two weeks prior to the meeting.** Written notice of the meeting must be provided to each member of the Advisory Committee.

The purpose of the proposal meeting is to:

- enable the Advisory Committee to assess the student's preparation for undertaking independent Ph.D. research;
- consider the feasibility of the proposed research; and
- provide necessary feedback for further advancement of the research.

The proposal meeting will be chaired by the advisor, and will have the following steps:

1. Introduction by advisor;
2. Presentation of highlights of the research proposal by the student;
3. Review of the proposal by the Advisory Committee; and
4. Determination of approval of the proposal by the Advisory Committee.

The decision of the Advisory Committee must be unanimous. The student is expected to work with the advisor to address any concerns raised in the proposal meeting. The feedback received must be incorporated into the document for circulation among the committee members and the advisor when requested by the committee. The Advisory Committee and NRI Director must approve the oral examination of the thesis proposal on the Faculty of Graduate Studies [Ph.D. Thesis Proposal](#) form, after which the student may proceed to the Candidacy Examination.

Ethics Review Process

Synopsis:

Completed and approved thesis proposal; development of research design and instruments; and procurement of clearance from the Human Ethics or Animal Care Review Committees.

a) Human Subjects

Ethical conduct related to research activities at the University is governed by [Policy #1406](#). All students who carry out “human research” must consult this Policy, complete the Course on Research Ethics (CORE), and complete a “[Human Subject Research Ethics Protocol Submission Form](#)”. The Policy and forms can be obtained from the [Office of Research Ethics Compliance](#). (<https://umanitoba.ca/research/opportunities-support/research-administration-system-ras>). Ethics protocol forms can only be submitted once the research proposal has been approved by the advisory committee.

Policy #1406 defines **human research** as: “any project that involves the collection of specimens, data or information from persons, through intervention or otherwise. Included are procedures that have a low degree of invasiveness (e.g. surveys, interviews, naturalistic observation, exercise or psychometric testing, examination of patient records), as well as more invasive procedures (e.g. blood sampling, insertion of a cannula, administration of a substance).” A **subject** in human research is defined as “a person, who by virtue of his/her involvement in a data-gathering situation or activity, is a source of primary data or information.”

The full ethics review procedures can be obtained from the Office of Research Services. Forms and guidelines are available from <http://umanitoba.ca/research/orec/735.html>.

b) Animal Care and Use Review Process

The NRI adheres to the University of Manitoba [Policy and Procedures on Animal Care and Use](#) for research and teaching. All research involving animals must be reviewed and approved by a [Protocol Management and Review Committee](#) prior to being undertaken. It is the responsibility of those needing to use animals to provide sufficient information to the Committee in order that an informed ethical decision can be made regarding their request to use animals. Approval is granted only after the proposed usage and care of the animals, i.e., the protocol of procedures, has been carefully examined. Animal Use Protocol Forms are available online at : http://umanitoba.ca/research/orec/animal_care/animal_care_forms.html

STAGE 2 Candidacy Examination

Synopsis:

The candidacy examination will explore the student's theoretical and applied knowledge in the *broader field* of study relating to the dissertation. The focus of the examination will be on the selected thematic areas or subfields (up to four thematic areas), and their synthesis, relating to natural resources and environment and the literature. The candidacy exam is comprised of a written and an oral component. The written examination will normally be completed over a period of three to four weeks. After receiving the Candidacy assignment, the student may seek clarification from members of the examining committee for three days.

The Candidacy Examination will normally be held within the first two years of full time registration in the Ph.D. program.

Faculty of Graduate Studies Regulations (**taken directly from FGS website*)

The Candidacy Examination is an absolute requirement of the Faculty of Graduate Studies and, as such, cannot be waived under any circumstances. However, the format and content of the candidacy exam will vary from unit to unit. The purpose of the candidacy exam in doctoral programs is to determine the student's competence in the discipline with respect to understanding and absorbing a broad spectrum of material, and then researching, identifying, analyzing, synthesizing, and communicating ideas about that material in depth.

At the time specified by the advisory committee--normally within the first year after the completion of the Ph.D. program coursework but in no case later than one year prior to expected graduation--the student must successfully complete the formal Candidacy Examination.

The examination is conducted according to a procedure established by the unit and approved by the Academic Guide Committee of the Faculty of Graduate Studies. Please see the unit supplemental regulations below for the format and composition of the examination committee for the Candidacy Examination. The Candidacy Examination can be held in-person at The University of Manitoba, virtually, or a combination of both.

This examination, which is independent from the thesis proposal, may be oral, written, or both and may cover subjects relevant to the general area of the candidate's research. These must be made known to the students.

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.

The Dean of the Faculty of Graduate Studies must be informed whether the candidate has passed or failed the Candidacy Examination on the “Report on Ph.D. Candidacy Examination” form (http://umanitoba.ca/faculties/graduate_studies/forms/index.html).

Any student who fails the Candidacy Examination twice will be required to withdraw from the Faculty of Graduate Studies.

On successful completion of this examination, the student will be considered a candidate for the Ph.D. degree.

Natural Resources Institute Supplemental Regulations Regarding Candidacy

Up to four thematic areas or sub-fields relating to the thesis and the broader fields of natural resources and environment will be jointly identified by the thesis Advisory Committee and the student. These thematic areas will serve as the topics of the Candidacy Examination and will encompass the “student’s broader field of study.” The identification of these thematic areas or sub-fields can occur after the Proposal Meeting or if the student and Advisor decide that the Candidacy will occur before the Proposal, the committee and Advisor will need to work together to identify the thematic areas.

The oral examination will normally proceed within one month of the completion of the written component. The oral Candidacy Examination will be conducted by the advisory committee, open to the public, chaired by the Director (or designate), and entail the following:

1. Introduction and explanation of procedures by Chair;
2. Formal presentation by the student for no more than 25 minutes.
3. Questions by the advisory committee on the selected thematic areas and the student’s broader field of study;
4. *In camera* determination by advisory committee of pass/fail of student’s Candidacy Examination, both written and oral components; and
5. Completion of Faculty of Graduate Studies form.

Both the written and oral examinations will be evaluated together at the completion of the oral examination. The Chair of the examining committee will call upon each member of the examining committee to determine whether the student has adequate knowledge in the field of study as demonstrated in the written and oral examinations. Considering both the written and oral components of the examination, the committee will vote with regard to the following outcomes:

If this is the first attempt at the Candidacy Examination, the following are potential outcomes of the exam:

- Pass – no further work required – Requires a unanimous decision of the committee.
- Fail - allowed to repeat – Major weaknesses have been identified. After further formal work as determined by the committee, the student will be allowed to re-take the Candidacy Examination. The second attempt of the Candidacy Examinations will normally be completed within six months of the failed attempt.

Note: If allowed to repeat with failure after the first attempt, both the written and oral must be repeated.

If this is the second attempt at the Candidacy Examination, the following are the potential outcomes of the exam:

- Pass – on successful completion of the Candidacy Examination, the student will be considered a candidate for the Ph.D. degree.
- Fail – the Faculty of Graduate Studies will require the student to withdraw from the program.

STAGE 3 Field and/or Laboratory-Based Research

Synopsis:

Collection of primary and secondary data through field and/or laboratory-based research and compilation and processing of the obtained data.

Upon completion of the Candidacy Examination and approval of the research design and instruments (including ethics and animal care approvals), each student is expected to complete field and/or laboratory research work to generate, collect, compile and process primary and secondary data. The nature and duration of field and laboratory work will vary from student to student. Normally, NRI faculty advisors will supervise the student in conducting field research. However, in case of advisor's unavailability, proxy field supervisor should be arranged by the advisor.

Latitude in format to accommodate the subject matter of each thesis is anticipated. Empirical fieldwork and other data collection techniques are critical components of the research process. Accurate records of data sources are essential. Students should ensure that duplicate copies of reports (electronic or hard copy) are safely kept in alternate locations to prevent loss of irreplaceable material. Care should also be taken to maintain confidentiality of material entrusted to the student by agencies or individuals.

Field and/or Laboratory-based research will normally be completed within the first three years of full-time registration in the Ph.D. program.

STAGE 4 First Draft Meeting

Synopsis:

Presentation and discussion of a first draft of the thesis at an Advisory Committee meeting. The first draft includes the data collected, analysis and discussion of findings in the context of the literature reviewed, and inferences and conclusions drawn.

Prior to the final oral examination of the thesis, the student and the advisor must organize a first draft meeting once a draft of the thesis is complete and deemed ready for presentation to the Advisory Committee for feedback. After data collection and analysis have taken place, writing the first draft of the thesis requires careful presentation of data, analysis and conclusions, and attention to composition, grammar and to the logical organization of the thesis. An appropriate style manual should be consulted prior to thesis writing. An outline is useful in the writing process and care must be taken in the preparation of maps, figures, and tables. The [Faculty of Graduate Studies Thesis Guidelines and Information](#) website outlines the publication requirements of the University.

The student must submit a copy of the first draft of the thesis to each member of the Advisory Committee at least two weeks prior to the meeting.

The Advisory Committee will discuss and recommend modifications necessary for progressing to the final thesis draft and oral examination.

Thesis Format

Students should be made aware that the thesis requirement may be met using different formats. Students should discuss possible formats with their faculty advisor and thesis committee members at the proposal meeting.

A typical format often used in the preparation of the thesis is as follows:

- Title Page
- Signature Page
- Abstract
- Acknowledgements
- Dedication
- Table of Contents
- List of Tables
- List of Figures
- Chapter One: Introduction and Statement of the Problem
- Chapter Two: Review of Literature
- Chapter Three: Methods
- Chapter Four: Analysis and Findings

Chapter Five: Discussion and Inferences
Chapter Six: Summary, Conclusions, and Recommendations
Footnotes, References, and Appendices
Figures, Illustrations, and Photographs
Additional Materials (i.e. Consent and Access Forms, Copyright Page)

In cases where the student, advisor, and Advisory Committee deem it appropriate, the format for the thesis may take, in part, the form of a manuscript, or manuscripts, ready for submittal to a recognized, peer-reviewed, journal in the appropriate field. The Advisory Committee will ensure that all NRI thesis requirements (i.e., problem or issue statement, objectives, literature review, conclusions, recommendations) are met in the manuscript or chapters as required. The Advisory Committee at the proposal meeting must agree to the journal(s) and manuscript(s) referred to above. The manuscript cannot be in the form of a journal 'note', 'observation', 'opinion', or other 'minor' publication.

Upon completion of the first draft of the thesis, a meeting of the Advisory Committee will be arranged by the advisor to review the thesis for completeness and adequacy to proceed on to the oral defense. The Advisory Committee will advise on the modifications necessary for progressing to the oral defense.

STAGE 5 Preparation of Final Thesis

Upon reviewing the first draft document, the Advisory Committee will suggest modifications prior to the final oral examination. Each student is responsible for completing necessary revisions as suggested by committee members. Particular care should be taken to ensure that the linkage between the objectives, hypotheses and/or expected results, findings, conclusions, and recommendations are maintained. In addition, all supporting evidence should be clearly provided throughout the document as appropriate. Figures, tables and maps should be presented in their final form. An abstract and acknowledgements should be included in the final submission. Proper bibliographic referencing should be used according to the appropriate style guide. Detailed publication requirements as described in the [Graduate Studies Thesis Guidelines and Information](#) must be followed. The onus is on each student to complete a detailed final editing (grammar, punctuation, spelling and other mechanics) prior to submission to his or her faculty advisor.

Once the thesis is prepared for defence, it is formally submitted by the student to the Faculty of Graduate Studies electronically via the university's JUMP portal. Detailed instructions for this are provided in a document available at https://umanitoba.ca/faculties/graduate_studies/media/Thesis_Distribution_Portal.pdf. Graduate Studies then circulates the thesis to the Advisory Committee members (at this stage called the Examination Committee) for their review. The Examination Committee members must rank the thesis as Category 1 or 2 (see

below) in their report to the Dean of Graduate Studies before it is sent to the External Examiner for their review. Note that after this stage the candidate can revise the thesis document before it is uploaded for distribution to the external. The choice of external is made by FGS based on the recommendations provided by the Advisor. The External Examiner must also rank the thesis Category 1 or 2 in order to proceed to the oral examination.

Ph.D. Thesis Categories

Category	Description	Implications
1	The thesis represents a distinct contribution to the candidate's field of research and it is acceptable as it stands (or with minor revisions to either content, structure, or writing style)	<ul style="list-style-type: none"> • Thesis has not received final approval • Candidate may proceed to their oral examination
2	The thesis has merit since it makes a contribution to the candidate's field; however, there are research-related concerns that have the potential to be dispelled in the oral examination. The structure and writing are acceptable or require only minor revisions.	<ul style="list-style-type: none"> • Thesis has not received final approval • Candidate may proceed to their oral examination
3	The thesis has some merit, but it is not acceptable in the current state since it requires major revisions to one or more of its core components, viz., research content, structure and writing style.	<ul style="list-style-type: none"> • Candidate has failed attempt and cannot proceed to oral examination
4	The thesis is unacceptable with respect to its core components, viz., research content, structure, and writing style.	<ul style="list-style-type: none"> • Candidate has failed attempt and cannot proceed to oral examination

STAGE 6 Oral Examination

The information in this section is adapted from:

http://umanitoba.ca/faculties/graduate_studies/thesis/Ph.D.oegi.html.

Doctoral students must pass an oral examination of the subject of their thesis and matters relating thereto before they may obtain the Ph.D. degree. The examination will be conducted by the Dean of Graduate Studies or the Dean's designate chosen from among scholars of the University. The examining committee will include at least three members of the University of Manitoba academic staff, normally the same members as that of the candidate's advisory committee, and an examiner external to the University of Manitoba. The oral examination can be held in-person at The University of Manitoba (which is encouraged), virtually, or a combination of both.

Prior to Scheduling the Oral Examination

The following must be assured prior to scheduling the oral examination:

Program information

At least two weeks prior to the defence date the following information must be received by the Faculty of Graduate Studies:

1. Thesis examining committee reports (both internal and external)
2. Student's examination program information (submitted in a Word document):
 - a. Biographical data if desired (i.e. birthplace)
 - b. List of degrees obtained--institution and date
 - c. List of the candidate's awards, publications, and joint publications
 - d. An abstract of the thesis (not more than 350 words)

Notes:

1. *It is the responsibility of the Department to reserve the room for the oral examination and notify FGS of the date, time and location and post the announcement.*
2. *The examination must be held at either the University of Manitoba Fort Garry or Bannatyne campus, or the St. Boniface Research Centre.*

Scheduling and Advertising of the Oral Examination

Once the oral examination has been scheduled, the Faculty of Graduate Studies must be notified. A minimum of two weeks notice is required. The Faculty of Graduate Studies will then ensure that memoranda announcing the examination are sent to the Department/Unit and the event is posted on the University webpage.

Notes:

1. *The oral examination is open to all members of the University community. Graduate students should especially be encouraged to attend.*
2. *Notices of the examination, including the invitation to graduate students, should be posted within the Department/Unit.*

Documentation for the Conduct of the Examination

Upon receipt of the External Examiner's report, FGS will forward the report and the "Guidelines for the Scheduling and Conduct of Ph.D. Oral Examinations" to the Department/Unit Head, Advisor, and Internal Examining Committee members.

Approximately one week prior to the oral examination, FGS will provide the Chair of the examination with a Chair package including the following:

- copies of all of the examiner's reports, both internal and external,
- the questions and expected answers, if provided, from the external examiner if not attending,
- the examination programs,
- release and copyright forms for the student,
- "Guidelines for the Scheduling and Conduct of the Oral Examination".

Note:

Questions submitted by the external examiner will not be forwarded to the advisor or to the candidate prior to the examination, unless this is explicitly requested by the external.

Conduct of the Examination

The individual chairing the oral examination bears a very important responsibility. A thorough examination and defence of the thesis serves as the University's guarantee that the standards of the Ph.D. are not only maintained, but strengthened. To this end, the procedures for the conduct of the examination must be consistent and adhered to strictly.

Prior to the start of the formal examination

The Chair ensures that:

- the location, facilities and equipment are considered appropriate for a Ph.D. defence,
- copies of the examination program are distributed to the candidate, the Examining Committee, and members of the audience, and
- the examining committee is aware of and understands the examination procedures.

General introduction and welcome

The Chair welcomes all of those in attendance and impresses upon the candidate, the examiners, and the audience that this occasion is the senior academic event in the Faculty of Graduate Studies and is a formal examination process prior to awarding the highest academic degree of the University of Manitoba.

Introduction of candidate and examiners

Referring to the Examination Program, the Chair:

- introduces the candidate, noting previous degrees obtained, awards, special achievements, and publications, and
- introduces the Examining Committee, beginning with a special welcome to the external examiner (if present) and proceeding with introductions of the non-departmental examiner, departmental examiners, and finally the advisor.

Note:

The Chair should note that all members of the examining committee have read the thesis and submitted written reports. The advisor may or may not have included a report.

Outline of procedures for the Oral Examination.

The Chair outlines the procedures for the conduct of the examination for the candidate, examining committee, and audience as follows:

1. The candidate will be asked to give a 25 to 30 minute presentation of the thesis to include the major objectives, content, results, and conclusions. The Chair also notes that the Candidate's ability to present the thesis clearly and concisely in a 25 to 30 minute period is an essential part of the examination process.
2. At the conclusion of the candidate's presentation, the examiners will be invited to pose questions. The Chair reminds the examiners that they will each be initially allowed approximately 20 minutes to pose their questions and that, because this is an examination on which candidates may, and do, pass or fail, their comments and discussions on the subject matter of the thesis, apart from those essential to the questions, should be made only at the post-examination meeting of the examiners.
3. The order of questioning from the examiners is: external examiner, non-departmental examiner, departmental examiners, and the advisor. The Chair notes that ample time will be given to ensure that the examiners are able to complete their questions and that they may raise additional matters after hearing the initial round of questions. The Chair also notes that, if the external examiner is not present, the Chair (or advisor, as decided) will pose the questions from the external examiner to the candidate.
4. If time permits, and after the questioning by members of the Examining Committee is completed, the Guest member (if applicable and in attendance) may be given an opportunity to ask questions, followed by other members of the FGS and members of the audience.

Notes:

1. *The Chair is not permitted to pose any questions of his/her own to the candidate. The Chair must remain neutral at all times.*
2. *At the conclusion of the candidate's presentation and before the questioning period, the Chair should allow sufficient time for those members of the audience*

who wish to leave the session to do so.

3. One and one-half hours should normally be sufficient for the conduct of the oral examination by the committee, but in no case should the questioning exceed two hours.

Following completion of the presentation and questioning period

The Chair conducts the remainder of the Oral Examination as follows:

- the audience (and Guest member, if applicable) is thanked for their attendance and support of the candidate and, along with the candidate, is asked to leave so that a confidential meeting of the Examining Committee may be held.
- each examiner is asked, in sequence, to comment on the candidate's performance with respect to the answers to the questions and on whether the candidate should pass or fail the oral examination*.
- the candidate is invited back into the room and informed of the results of the examination, the nature of revisions, and the method of approval of the revisions.
- the candidate is reminded of the procedures for submission of the thesis to MSpace, and of the meaning and use of the copyright and partial release of copyright forms.
- the candidate is congratulated (if appropriate) and members of the Examining Committee thanked.

Notes:

*1. *If the external examiner or two or more internal examiners indicate a fail, the candidate fails the examination.*

2. The decision of the Examination Committee is reported on the "Final Oral Examination of the Ph.D. Thesis" form, submitted to FGS.

3. A second attempt at the oral defence of the thesis may be scheduled in accordance with the regulations of FGS.

4. The nature of required revisions, prior to submission of the final copy of the thesis to MSpace as well as the procedures for their completion is determined. This is done by the Chair in discussion with the committee.

5. The members of the Examining Committee are asked to sign the approval form, and indicate whether they assign the candidate a vote of "Pass" or "Fail" on their oral defense.

STAGE 7 Following Completion of the Oral Examination

The Chair shall:

- communicate to the Dean of Graduate Studies, through the submission of the "Report for Final Examination of the Ph.D." form, the nature of the revisions and the procedures to ensure that the revisions are satisfactorily

made.

The Dean of Graduate Studies shall:

- ensure that the External Examiner is thanked for his/her services.

The Advisor shall:

- approve the revisions to the thesis according to the agreed upon directions from the Examination Committee.
- obtain the committee members' signatures on the "Final Oral Examination of the Ph.D. Thesis" form, including any members who attended the defence remotely.
- submit the "Final Oral Examination of the Ph.D. Thesis" form to the Graduate Studies Office by the appropriate deadline.

The Candidate shall:

- submit all required forms to the Faculty of Graduate Studies, room 500 University Centre, including thesis release forms and, if applicable, copyright permissions.
- submit a digital version of the final thesis as an e-thesis at the [MSpace website](http://mspace.lib.umanitoba.ca)(<http://mspace.lib.umanitoba.ca>).

In addition, the student is recommended for graduation after submitting all the final copies to the NRI General Office **one week** prior to the Faculty of Graduate Studies deadline for submission, required final copies are as follows:

- 1 digital copy – NRI General Office
- 1 digital copy – Advisor
- 1 digital copy – Each Committee member

Students are required to complete all the necessary documentation prior to graduation. Costs for hard copies of the thesis are the student's responsibility.

NRI Ph.D. students are normally expected to complete their degree requirements in less than the first five years of full-time registration in the program. The maximum time limit for a student's candidature is six years following initial registration in the Ph.D. program. A [Request for an Extension of Time](#) may be approved by the Dean of Graduate Studies upon recommendation from the NRI.

4.0 Authorship of Publication

Students are encouraged to publish the results of their research work in addition to

the preparation of a thesis. The right of first authorship rests with the student for a period of one year from the date of the oral examination of the thesis. Secondary authors should also be agreed upon prior to publication.

After the expiration of the one-year period identified above, or in cases where a thesis is not completed, the faculty advisor and/or other committee members may initiate discussion with the student respecting waiver of publication rights. Any party involved shall refer any dispute respecting publication rights, in the first instance, to the NRI Director or the Associate Head.

5.0 Appeal – Procedures and Guidelines

Students who disagree with a decision have access to appeal routes and should consult with the Student Advocacy Office, Room 519, University Centre. The Faculty of Graduate Studies [Discipline Appeal Form](#) outlines the appeal process and Student Discipline By-Law Appeals Process.

6.0 Credential to be Granted

The degree of Doctor of Philosophy, with a specialization in Natural Resources and Environmental Management, is granted upon completion of the requirements of the Natural Resources Institute and the Faculty of Graduate Studies.