



UNIVERSITY
OF MANITOBA

Faculty of Agricultural
and Food Sciences

Department of Plant Science

Supplementary Regulations and Guidelines for Candidacy Examinations

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The regulations and guidelines contained in this document supplement or reinforce those found in the *University of Manitoba Graduate Calendar* and in the Faculty of Graduate Studies *Academic Guide*.

January 10-20

THE CANDIDACY EXAMINATION

The Ph.D. degree is the highest degree awarded by the University of Manitoba. This degree is granted on the basis of academic achievement, independent research and scholarship, and demonstration of proficiency in the chosen field of study. Students registered in a Ph.D. program do not become candidates for the Ph.D. degree until they have successfully completed a candidacy examination. The purpose of the candidacy examination is to determine the student's competence in the discipline with respect to understanding a broad spectrum of scientific material, and then researching, identifying, analyzing, synthesizing, and communicating ideas about that material in depth. The student must demonstrate: i) ability in independent research and/or scholarship; ii) broad general knowledge; iii) ability to integrate knowledge; and iv) ability to synthesize and communicate ideas and thoughts.

BASIC PHILOSOPHY OF THE CANDIDACY EXAMINATION

The candidacy examination **is** intended to assess the student's overall potential as a Ph.D. candidate, and determine whether the student has acquired the skills expected of a person receiving the highest academic degree. The candidacy examination is **not** intended to be a comprehensive examination of previous courses. Students are expected to have a solid foundation in basic science and demonstrate an ability to apply this to solve research problems.

The candidacy examination will assess the student's competence and potential as an independent scientist in the chosen field of study. Therefore, the examination should be designed to assess the student's:

1. **Research potential:** Some indications of a student's research potential are the ability to:
a) assess and solve problems; b) interpret and evaluate research results; c) think critically; and d) determine future research directions.
2. **General knowledge:** General knowledge of biological science and plant science in particular, must be demonstrated. Students should be aware of research activities in the Department of Plant Science and be familiar with research being conducted within their area of specialization beyond the Department of Plant Science. Students should be aware of current issues in science, both locally and globally.
3. **Ability to integrate knowledge and synthesize information:** The student should be able to integrate knowledge learned from a number of sources into a problem solving situation.
4. **Ability to communicate:** The student should be able to communicate ideas and thoughts clearly and concisely, both orally and written. The student should be able to answer questions in a logical and organized manner that is clear, concise and grammatically correct.

THE CANDIDACY EXAMINATION FORMAT

The main goal of the examination is to assess the general knowledge of students, their problem solving and communication skills, ability to think through a scientific problem, and answer in a coherent manner. The examination will cover areas related to the student's research discipline.

The candidacy examination will consist of two parts: a **written examination** to be conducted first; followed by an **oral examination** at a later date. The oral part should normally take place within seven to 14 days after completion of the written part.

Written Examination: The student will sit for this examination over two consecutive working days for four hours per day. Four hours per day must be retained when the examining committee is composed of fewer than, or more than, four members.

No unauthorized electronic devices are allowed in the written examination room.

Note: Students are permitted to keep the written examination questions.

Oral Examination: This examination will be approximately two hours in length, but under no circumstances exceed three hours.

The oral examination also provides an opportunity to clarify answers from the written examination, if needed.

EXAMINING COMMITTEE

The examination will be chaired by a faculty member normally chosen from the Plant Science Graduate Studies Committee by the chair of that committee. The members of the examining committee will normally be the members of the student's advisory committee. The chairperson of the examining committee must not be a member of the student's advisory committee.

The role of the chairperson:

- To coordinate the examination process.
- To provide the Department of Plant Science Supplementary Regulations and Guidelines for Candidacy Examinations to the advisory committee and the student prior to the first meeting as chairperson.
- To meet (normally within two weeks of being assigned as chairperson) with the examining committee to:
 - outline the requirements of the examination process;
 - coordinate areas of questioning for the written examination;
 - schedule the dates of the examinations;
 - coordinate the time allotted to each examiner.

- To receive questions from the examining committee at least seven days prior to the examination date and evaluate the questions relative to the objectives and goals of the candidacy examination. The chairperson will have the ability to ask examiners to modify their questions to fulfil the objectives and goals of the candidacy examination.
- To invigilate the written portion of the examination and to chair the oral portion of the examination.
- To serve as facilitator in the evaluation of the student's performance. The chairperson will not be required to make their own evaluation, but will be responsible for compilation of the evaluation results and communication of the results to the student, the Department of Plant Science and the Faculty of Graduate Studies. The chairperson must take notes during the oral examination for clarification of the process if required.

The role of the examining committee:

- To familiarize themselves with the Department of Plant Science Supplementary Regulations and Guidelines for Candidacy Examinations.
- To facilitate the student's preparation for the candidacy examination. This should include guidance relative to expectations, spending time with the student discussing principles, concepts and ideas, providing suggested readings and sample questions, etc.
- To formulate questions that will assess the student's abilities relative to the objectives and goals of the candidacy examination, and submit the questions to the chairperson within the time frame requested by the chairperson (at least seven days prior to the written examination to allow time for modification, if necessary). Examiners are expected to review the rationale and objectives of the candidacy examination prior to formulation of their questions and are encouraged to seek guidance from the chairperson if necessary. Questions should be formulated in such a way that will allow the examiner to evaluate the student's answer, not only on the basis of a correct response, but also on the basis of communication skills, analytical thinking, interpretation, integration, synthesis of ideas, etc.
- To evaluate the student's performance relative to the goals and objectives of the candidacy examination.
- To provide the opportunity to practice for the oral examination during the student's regular advisory committee meetings (see [http://umanitoba.ca/faculties/afs/dept/plant_science/media/pdfs/PhD_Advisory_Committee_Meeting_Guidelines_Jan-26-18_\(2\).pdf](http://umanitoba.ca/faculties/afs/dept/plant_science/media/pdfs/PhD_Advisory_Committee_Meeting_Guidelines_Jan-26-18_(2).pdf)).

THE STUDENT

The student should:

- Review the rationale and objectives of the candidacy examination at the **start** of the Ph.D. program.
- In consultation with the advisory committee, inform the Plant Science Graduate Studies Committee of the intent to sit for the candidacy examination a minimum of three months prior to the expected examination date. The candidacy examination will normally occur within 18-24 months after commencement of the Ph.D. program. Regulations of the Faculty of Graduate Studies stipulate that “in no case later than one year prior to the expected graduation the student must successfully complete the formal candidacy examination.”
- Ask members of the examining committee for assistance in preparation for the examination. Consult with the chairperson for guidance and clarifications relative to the examination process.
- Prepare for the examination. **Preparation for this examination should start at the beginning of the Ph.D. program and should not be considered a three month cramming session.** The process should be the gradual development of the student as a scientist. This involves increasing their ability to assess and evaluate information, and apply it to their area of research.
- Practice written and oral problem solving skills at advisory committee meetings. Interact with other students and/or within the research group to develop reasoning skills and discuss scientific principles.
- Keep reading and talking to people working around them. Be aware of issues related to plant science, and also explore other areas of science.
- Take opportunities to discuss science and research with colleagues.
- Communicate with their advisory committee members several times while preparing for the examination.
- Not be afraid to ask questions and to look for answers.
- Demonstrate other skills besides knowledge in answering questions. Provide their reasoning, the assumptions made, etc. **Students will be evaluated on the ability for higher levels of thinking, for example, interpretation, analysis, integration and synthesis.**

Decision of Examiners

The student must pass both parts of the candidacy examination in order to pass the examination. A student will proceed to the oral examination even if the written examination is failed. Examiners will not report results of the written examination to the student prior to completion of the oral examination. After completion of both parts of the examination, a failure in either the written examination or the oral examination will be reported as a failed attempt. A student has a maximum of two attempts. The second attempt must occur within four months from date of notification of the decision on the first attempt.

A favourable decision must be unanimous. Anything less than unanimity will be considered a failure. The chairperson should communicate the result of the examination orally to the student right after the decision has been made. The chairperson should communicate the results in writing to the student within one week of completion of the examination, including an assessment of their performance based on the comments from the committee, regardless of whether the student passed or failed the examination. This will make the student aware of any weaknesses. This written assessment of the student's performance in the candidacy examination should be copied to the examination committee members and to the Head, Department of Plant Science.

All examination papers are returned to the chairperson. Papers that have been passed can be returned to the student. Original copies of failed papers will be kept on file in case of appeal, however, photocopies can be returned to the student.

Sample Evaluation Questionnaire

Has the student:

- effectively communicated the answers to the questions?
- shown an ability to assess and solve problems?
- demonstrated an ability to think critically?
- demonstrated a good general knowledge in areas outside the area of specialization?
- demonstrated specific knowledge in the area of specialization suitable to a Ph.D. candidate in the process of completing a research project?
- demonstrated an ability to reason through a problem even when some of the assumptions made were incorrect?
- shown the ability to integrate knowledge from other areas and apply this to a particular problem?
- demonstrated independence of thought and ability to synthesize new ideas?