



**UNIVERSITY OF ALBERTA**  
**FACULTY OF MEDICINE & DENTISTRY**  
Department of Oncology

*Graduate Handbook*  
*2015-16*

## Table of Contents

Department of Oncology.....	4
Graduate Program .....	4
Graduate Program Administrator.....	4
<b>1. THE DEPARTMENT OF ONCOLOGY GRADUATE PROGRAM.....</b>	<b>5</b>
<b>1. THE DEPARTMENT OF ONCOLOGY GRADUATE PROGRAM .....</b>	<b>5</b>
1.1 Role of the Associate Chair of Graduate Studies, the Advisory Committee to the Associate Chair and of the Graduate Program Administrator.....	5
1.2 Role of the Graduate Coordinating Committees (GCC) .....	5
1.3 Role of the Medical Physics Graduate Coordinator and of the Medical Physics GCC.....	6
<b>2. ADMISSION .....</b>	<b>6</b>
2.1 Admission Requirements .....	7
<b>3. FINANCIAL ASSISTANCE.....</b>	<b>8</b>
3.1 Dr. Herbert Meltzer Memorial Tuition Fellowship [Experimental Oncology] .....	9
3.2 The Sarah & Nancy South Memorial Graduate Scholarship in Oncology .....	10
3.3 The Brian & Gail Heidecker Graduate Travel Award .....	10
3.4 Policies and guidelines regarding research allowances awarded to Department of Oncology graduate students	10
<b>4. GRADUATE DEGREES IN ONCOLOGY .....</b>	<b>11</b>
4.1 Academic Integrity and Ethics Training .....	11
4.2 The Degree of MSc .....	11
4.3 Time-line for the MSc degree .....	12
4.4 Change of status from MSc to PhD degree candidate .....	12
4.5 The Degree of PhD .....	12
4.6 Time-line for the PhD degree.....	13
<b>5. THE SUPERVISOR/SUPERVISORY COMMITTEE .....</b>	<b>13</b>
5.1 Choosing a supervisor.....	13
5.2 Criteria for supervision .....	13
5.3 Selecting a supervisory committee .....	14
5.4 Supervisory committee meeting requirements .....	14
5.5 Supervisory Committee reports .....	15
5.6 Student-supervisor conflicts.....	15
5.7 Resources for Students.....	15
6.2 Course requirements .....	16
6.3 Laboratory rotations .....	17
6.4 The PhD proposal .....	18
6.5 The PhD Candidacy Examination .....	19
6.6 Preparing for the PhD candidacy exam .....	20
6.7 The PhD Candidacy Examination Committee .....	21
6.8 The PhD candidacy grant proposal .....	21
6.9 Conducting the PhD candidacy examination .....	21
6.10 Extending the PhD candidacy examination beyond 36 months .....	23
6.11 The MSc final exam .....	25
6.12 The MSc Final Exam Committee .....	25
6.13 Conducting the MSc final oral examination.....	25
6.14 Submitting the MSc thesis to FGSR .....	26
6.15 Restricting Access to a Thesis .....	27
6.16 The PhD final exam .....	27
6.17 The PhD Final Examination Committee .....	27
6.18 PhD Final Exam: Inviting the External Examiner .....	28
6.19 Conducting the PhD Final Oral Examination .....	29
6.20 Submitting the PhD thesis to FGSR.....	30

6.21	Restricting Access to a Thesis .....	30
7.0	<b>THE MEDICAL PHYSICS GRADUATE PROGRAM .....</b>	<b>32</b>
7.1	The Medical Physics MSc Program .....	32
7.2	The MSc Final Exam Committee Composition .....	32
7.3	The MSc Final Examination .....	33
7.4	MSc Thesis Submission .....	35
7.5	The PhD Candidacy Exam .....	35
7.6	Degree of PhD in Medical Physics .....	38
7.7	PhD Final Exam Committee Composition .....	38
7.8	External Examiner for PhD Final Exam .....	39
7.9	PhD Final Oral Exam .....	40
7.10	Submission of PhD Thesis to FGSR .....	43

## Department of Oncology

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# **1. THE DEPARTMENT OF ONCOLOGY GRADUATE PROGRAM**

## **1. THE DEPARTMENT OF ONCOLOGY GRADUATE PROGRAM**

The Department of Oncology is a research-oriented department that provides a focus for cancer-related teaching and research within the Faculty of Medicine & Dentistry. The Department is based at the Cross Cancer Institute (CCI), a tertiary cancer facility operated by Alberta Health Services that provides cancer care to northern and central Alberta. The Department offers thesis-based MSc and PhD degrees. It has seven academic divisions: Experimental Oncology, Medical Oncology, Medical Physics, Oncologic Imaging, Palliative Care Medicine, Radiation Oncology, and Surgical Oncology. Oncology degrees are offered under two specializations “Cancer Sciences” and “Medical Physics”. The Specialization of Cancer Sciences serves the needs of the Divisions of Experimental Oncology, Medical Oncology, Oncologic Imaging, Palliative Care Medicine, Radiation Oncology and Surgical Oncology whereas the specialization in Medical Physics serves the needs of the Division of Medical Physics.

### ***1.1 Role of the Associate Chair of Graduate Studies, the Advisory Committee to the Associate Chair and of the Graduate Program Administrator***

The office of the Associate Chair of Graduate Studies in Oncology acts as a liaison with the Faculty of Graduate Studies and Research (FGSR) and with the Faculty of Medicine and Dentistry and oversees the entire graduate program. The Associate Chair for Graduate Studies in Oncology (Dr. Alan Underhill) is therefore the graduate coordinator for the Department of Oncology. The Associate Chair is aided by an Advisory Committee, which includes the Department Chair and representation from the specializations of Cancer Sciences and Medical Physics. The mandate of the committee is to make policy recommendations for the overall governance of the Oncology Graduate Program. The Associate Chair of Graduate Studies is assisted by the Graduate Program Administrator Yvette Labiuk. All enquiries and accompanying paperwork (admission enquiries, forms, correspondence, etc.) should be directed to the graduate program administrator who is assisted in these duties by the graduate program assistant Ms. Gwen Mendoza.

### ***1.2 Role of the Graduate Coordinating Committees (GCC)***

Each Specialization is guided by a Graduate Coordinating Committee that is chaired by a representative from within the Specialization with experience in graduate student supervision. The chair of the Cancer Sciences Graduate Coordinating Committee is Dr. Mary Hitt and the chair of the Medical Physics Graduate Coordinating Committee is Dr. Gino Fallone. The role of the GCCs is to approve or reject student admissions, to assist in facilitating appropriate supervisor-student pairings, to monitor the progress of graduate students within the Specializations, to review and make recommendations for PhD proposals, and to set regulations for students within the Specialization (including course requirements).

Current members of the Cancer Sciences GCC in addition to Dr. Mary Hitt are Dr. Roseline Godbout (the Acting Divisional Director); Dr. Gordon Chan; Dr. Frank Wuest; Dr. YangXin Fu, Dr. Vickie Baracos, Dr. Lynne Postovit, Dr. Jennifer Spratlin; the Departmental Chair Dr. Sandy McEwan (ex-officio), Yvette Labiuk (Graduate Program Administrator); and the Associate Chair Graduate Studies, Dr. Alan Underhill (ex-officio). Divisional Directors will be invited to attend GCC meetings as required.

### ***1.3 Role of the Medical Physics Graduate Coordinator and of the Medical Physics GCC***

The Graduate Coordinator in Medical Physics is responsible for the administration of the Graduate Program within the specialization of Medical Physics. The current Graduate Coordinator within the specialization of Medical Physics is Dr. Gino Fallone (Divisional Director) and is assisted in this task by the Medical Physics Graduate Coordinating Committee (MPGCC).

## **2. ADMISSION**

All students wishing to pursue graduate studies in the Department of Oncology should contact the Graduate Program Administrator or the Graduate Program Assistant. Students are invited to visit the departmental website at

<http://www.oncology.med.ualberta.ca/Education/Graduate%20Training%20Programs/Pages/default.aspx> where they can obtain more information about the Department, staff, graduate program, research opportunities, core facilities and training awards. Students must apply on-line. The Graduate Program Administrator will act as a liaison with the student and prepare a file containing all the documents necessary for consideration for admission. That file will reside in the office of the Oncology Graduate Program.

## 2.1 Admission Requirements

	Cancer Sciences	Medical Physics
Application deadlines	September admission: March 31  China (PRC) and Nigeria September admission: May 1 January admission: September 1	September admission only: March 31
Admission requirements	<p><u>Academic achievement</u></p> <p>Honors standing in an undergraduate degree (i.e. GPA 3.3 on the 4.0 point scale, B+ or its equivalent from another university)</p> <p><u>Additional requirements for international students:</u></p> <p>1) English Language Proficiency:</p> <p>TOEFL: Minimum score of 100 in the internet version IELTS: Minimum overall score band of 7.0 with no less than a score of 6 on each band PTE: (Pearson Test of English Academic) Minimum score of 68</p> <p>2) GRE (Graduate Record Exam) The GRE is not required, but may be included in the application</p> <p>3) The Department cannot accept applicants unless a supervisor has been identified. Prospective students should contact a principal investigator to discuss opportunities prior to applying.</p>	<p><u>Academic achievement</u></p> <p>Minimum grade point average of 7.0, based on a 9 point scale or roughly 75% or 3.3 on a 4 point scale or a letter grade of B+.</p> <p><u>Additional requirements for international students:</u></p> <p>1) English Language Proficiency:</p> <p>TOEFL: Minimum score of 600 (paper version); 100 internet version MELAB: minimum score of 85 IELTS: Minimum overall band score of 7.0 with no less than a score of 6 on each band CAEL: Minimum overall score of 70 with no less than 60 on each subtest PTE (Pearson Test of English Academic) Minimum score of 68</p> <p>2) GRE (Graduate Record Exam) Minimum score of 850 on the GRE Physics subject test</p>
Degree Requirements	<p><u>MSc</u></p> <ul style="list-style-type: none"> <li>• Three courses (9) units of course weight in graduate level courses</li> <li>• Successful defense of MSc thesis</li> <li>• Completion of 8 hours of academic integrity &amp; ethics training</li> </ul> <p><u>PhD</u></p> <ul style="list-style-type: none"> <li>• Four courses (12 units) of course weight in graduate level courses</li> <li>• Completion of the PhD candidacy exam</li> <li>• Successful defense of the PhD thesis</li> <li>• Completion of 8 hours of academic integrity &amp; ethics training (if not completed in MSc program)</li> </ul>	<p><u>MSc</u></p> <ul style="list-style-type: none"> <li>• Eleven didactic courses (29 units) and two laboratory courses (4 units) in graduate level courses</li> <li>• Successful defense of MSc thesis</li> <li>• Completion of BME 320 or 321 any time during the program</li> <li>• Completion of 8 hours of academic integrity &amp; ethics training</li> </ul> <p><u>PhD</u></p> <ul style="list-style-type: none"> <li>• Completion of MSc course requirements plus two additional PhD courses (6 units)</li> <li>• Completion of BME 320 or 321 any time during the program</li> <li>• Completion of the PhD candidacy exam</li> <li>• Successful defense of PhD thesis</li> <li>• Completion of 8 hours of academic</li> </ul>

		integrity & ethics training (if not completed in MSc program)
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Students from Canada should allow a minimum of two months for processing of their application. Foreign students should allow at least 4 to 6 months for processing of the application, depending on country of origin. To optimize their chances of securing one of a limited number of places, students are encouraged to apply up to a year ahead of their proposed start date.

Students whose academic standing is too low to allow direct acceptance into the graduate program, or with a recognized weakness in the area of their specialization may in some cases be accepted as qualifying students or as students admitted subject to certain conditions (the categories are explained in the University Calendar under Section 203.2.2). This status normally applies for a year or less and allows the student to take courses to improve their academic standing. The FGSR will allow students admitted with conditions or qualifying students to participate in research activities during this period, but only with specific permission from the supervisor and the Department. If students perform satisfactorily in their courses and are felt to be fully qualified, they will be admitted into the graduate program. Graduate level courses taken by qualifying students do not count towards the final degree.

Students possessing the basic requirements for admission should complete the *Application for Admission* form, which is available at <https://uofa.ualberta.ca/graduate-studies/prospective-students/apply-for-admission>. This form should be completed and returned electronically. Sealed official transcripts, curriculum vitae, and three letters of reference should be submitted on the online application or follow by mail. In addition students applying to the Cancer Sciences program are required to submit a short “vision statement” indicating why they are interested in doing graduate studies in the Department of Oncology. Complete applications will be reviewed at the next meeting of the appropriate GCC, at which time the GCC will decide whether to recommend to FGSR that the student be admitted.

### 3. FINANCIAL ASSISTANCE

The Department does not admit prospective students unless financial support (departmental studentships, trust funds, or extramural funding) is available. Prospective supervisors will assist the student in securing funds through application to internal and external agencies, or may provide support from their research funding. Students who are progressing satisfactorily can therefore expect to receive a graduate student stipend for the normal tenure of their program.

The minimum (basic) annual stipend for graduate students is \$25,000 ( 2015-16). Students are responsible for paying their tuition. The minimum (basic) annual stipend for graduate students with a major award is \$27,000 ( 2015-16). Students may be able to obtain a higher stipend by applying for internal and external studentships. Students are responsible for notifying the department of any studentships, bursaries, or other awards received, which contribute to their stipend or tuition payment.

Students who are working full-time towards their graduate degree and who are in good standing with the Department will receive the departmentally-recommended stipend for a maximum of four years (for students registered in the MSc program) or six years (for students registered in the



PhD program). Funding for additional years should be negotiated between the student and supervisor.

Students, who take full-time employment prior to completing their degree requirements, even if maintaining their registration in the Department of Oncology graduate program, are not eligible to receive a stipend.

Students, who take part-time employment prior to completing their degree requirements, even if maintaining their registration in the Department of Oncology graduate program, will be dealt with on a case-by-case basis.

Information regarding graduate studentships awarded through the University of Alberta is available at <https://uofa.ualberta.ca/graduate-studies/awards-and-funding>. Information regarding graduate studentships awarded through the Department of Oncology is available at <http://www.oncology.med.ualberta.ca/Education/Graduate%20Training%20Programs/ScholarshipsandFees/Pages/default.aspx> The Department of Oncology internal awards include: the Cathy and Harold Roozen Endowment Entrance Award, which consists of an annual stipend (\$20,000 plus tuition) and a research allowance (\$1,500) for two years, and the Antoine Noujaim Graduate Entrance Scholarship. Information regarding studentships awarded by external agencies such as Alberta Innovates-Health Solutions (<http://www.ahfmr.ab.ca>), Canadian Institutes of Health Research (<http://www.cihr-irsc.gc.ca/e/193.html>), Canadian Cancer Society Research Institute (<http://cancer.ca/Research.aspx>) Natural Science and Engineering Research Council (<http://www.nserc-crsng.gc.ca/>), Alberta Health Services (<http://www.albertahealthservices.ca/>) and others, is available through their respective websites.

### ***IMPORTANT:***

#### ***Deadlines for Applying for scholarships, studentships, PDF awards:***

Applications for funding require *completed* application forms to be brought to the Graduate Program Administrator ( Yvette Labiuk) in room 2243 (Department of Oncology Office) in order to obtain the Department Chair's signature. Once the signature is obtained, the Graduate Program Administrator will forward the forms to the Faculty of Medicine and Dentistry (FoMD) Research Office. The department requires **2 business days** to obtain the Chairs signature and the FoMD Research Office requires **5 business days** to review the forms before submitting to the funding agency. Applications must therefore be submitted to Yvette **no later than 7 business days before agency deadlines**.

#### ***3.1 Dr. Herbert Meltzer Memorial Tuition Fellowship [Experimental Oncology]***

##### ***The Cathy & Harold Roozen Endowment Entrance Award Terms of Reference***

The Cathy and Harold Roozen Endowment Entrance Award (Roozen Award) is awarded to students entering a PhD or Master's Program with the Department of Oncology, University of Alberta. Students are evaluated on the documents submitted with their application for admission into the program and a statement of their personal goals and vision.

The tenure of the Award is from September 1<sup>st</sup> to August 31<sup>st</sup> for a two-year period, with an annual stipend of \$22,000. The Award also covers annual tuition fees (including international differential fees) and an annual research allowance of \$1,500, which can be used for travel, books, computer applications, or research supplies.

If a recipient of the award obtains major external competitive funding during the term of a recruitment award, the Roozen Award will be converted to an incentive award consisting of a tuition bursary and research allowance for the duration of the term of the original recruitment award. Winners or honorary winners of the Walter H. Johns Graduate Fellowships, winners of the Provost Doctoral Entrance Award, winners of scholarships with a tuition component, or students whose tuition will be paid by third parties (government, etc) are not eligible for the tuition bursary.

Administration of the Roozen Award is the responsibility of the Graduate Program Administrator, Department of Oncology.

Updated July, 2015

### ***3.2 The Sarah & Nancy South Memorial Graduate Scholarship in Oncology***

Awarded annually to a full-time student in an MSc or PhD degree program, or a full-time student in the postgraduate medical education program in any department in the Faculty of Medicine and Dentistry who is actively engaged in thesis research in the education, prevention, or treatment of colon cancer in women. Recipients will be selected on the basis of academic excellence and demonstrated exceptional ability and intellectual curiosity in their scholarly work. Preference will be given to those who exemplify the qualities of camaraderie, teamwork, and integrity. The award may be renewed for a second year, in which case, no new scholarship recipient will be selected.

### ***3.3 The Brian & Gail Heidecker Graduate Travel Award***

The Brian & Gail Heidecker Oncology Graduate Student Travel Endowment provides two awards of up to \$500 each year to assist graduate students in the Department of Oncology to travel to, and be active participants in, symposia and conferences related to their field of cancer research. Applicants may be MSc or PhD level students registered in the Department of Oncology and must be presenting at the event for which funding is requested. This award is tenable only once during a student's program.

### ***3.4 Policies and guidelines regarding research allowances awarded to Department of Oncology graduate students***

Some granting agencies provide a research allowance to graduate students. All expenditures by the student from these allowances must be approved in advance by the supervisor or, where guidance is required as to the suitability of specific expenditures, by the appropriate GCC. Allowable items must relate directly to the students' research and would include books, journals, periodicals, travel, etc. Items that are normally associated with entertainment should not be purchased through a research allowance, even if these items have additional functions that can be used in a research setting. Proper documentation of items purchased must be provided with the expense claim.

*(N.B. If these policies disagree with the official policies of the granting agency, the latter will hold)*

## **4. GRADUATE DEGREES IN ONCOLOGY**

The Department of Oncology offers thesis-based MSc and PhD degrees. Students entering the program are registered as MSc or as PhD degree students. Course work will normally be at an advanced level (i.e., 500 to 600 levels). In addition to courses each candidate must prepare and defend a thesis describing the results of his/her research program.

For complete MSc course requirements in Cancer Sciences; please refer to Section 6.2

For complete Medical Physics MSc course requirements; please refer to Section 7.0

### ***4.1 Academic Integrity and Ethics Training***

All students registered in Oncology must complete eight hours of training in academic integrity and ethics. A student will not be allowed to graduate unless he/she has fulfilled this University requirement. Fundamental ethics concepts to be addressed include research and scholarly integrity, intellectual property, conflict of interest, supervisor/student conflicts, human research ethics and animal research ethics. Training in academic integrity and ethics can be partially fulfilled by participating in the Ethics and Scientific Integrity Day held by the Faculty of Medicine and Dentistry each year. This component will count towards five hours of training in academic integrity and ethics. Additionally, the GET (Graduate Ethics Training) online course is a web-based course offered by the Faculty of Graduate Studies and Research, which is equivalent to five hours of training. The remaining three hours will be through departmental/institutional seminars or course work. Additional components may be required if the student is involved in animal and/or human research. Students involved in animal research must participate in the University of Alberta workshop on The Care and Use of Animals in Research, Teaching and Testing. Each student should provide the Graduate Program Administrator with a photocopy of the Ethics and Scientific Integrity Day certificate, or other relevant certificates or documentation, so that these can be included in the student's file. This training component of the graduate program is mandatory and must be fulfilled prior to the PhD Candidacy Exam or prior to the MSc Thesis Defense.

NB: Medical Physics graduate students are required to complete the “Graduate Ethics Training” (GET) online component as part of their 8 hours of ethics training.

### ***4.2 The Degree of MSc***

Admission to the MSc program in the Department of Oncology is contingent upon approval of the application by the GCC and the FGSR. Students must maintain a GPA of at least 6.5/9 or 2.7/4 (B-) in order to remain in the MSc program and must obtain a pass grade [6.0/9 or 2.3/4 (C+)] in each graduate course completed. The minimum course complement is 3 approved graduate level courses (9 course weights). The course requirements vary between the specializations and are determined by the appropriate GCC.

In addition to courses, the MSc candidate must prepare and defend a thesis describing the results of his/her research program. The student will be examined orally on the contents of the thesis by a committee formed according to FGSR regulations. All graduate students must complete a course or courses in academic integrity and ethics (refer to Section 4.1). A student will not be allowed to graduate unless he/she has fulfilled this University requirement.

### **4.3 Time-line for the MSc degree**

The minimum residency requirement for the MSc degree in Oncology is one year. The MSc program will usually take two to three years to complete. The University time limit for MSc degrees is four years. Extensions may be granted by the FGSR under extenuating circumstances. MD's and other health professionals registered in the program are frequently required to spend a portion of their time in clinical activity; however, at least 80% should be devoted to academic research. The time spent in clinical activity does not count towards the degree requirement.

### **4.4 Change of status from MSc to PhD degree candidate**

Students enrolled in the MSc program can request a transfer to the status of PhD degree student. The Associate Chair Graduate Studies will monitor the process. Students who are performing well in their research and their course work, and who wish to transfer, are encouraged to do so within their first two years. Students who transfer in their first year may then qualify for University of Alberta PhD scholarships, which are available only to students in their first two years of a PhD program.

To transfer to the PhD program, students must obtain the approval of their supervisor and supervisory committee. Transfer to the PhD degree will be initiated by the Department of Oncology graduate office once the supervisor, supervisory committee and appropriate GCC have approved the PhD proposal.

For M.Sc. students in Cancer Sciences, approval is based on academic record, completion of required courses, progress in their MSc research and demonstration of the potential to expand the scope of their research through submission of a PhD proposal. The PhD proposal must be approved by both the supervisory committee and by the CSGCC (Section 8.4). All members of the supervisory committee must approve the transfer to the PhD degree by signing "Section 3" of the "Supervisory Committee Report" (attached).

For students registered in Medical Physics, approval is based on: (i) academic record, completion of required courses, progress in their MSc research project and potential to expand the scope of their research project. The Medical Physics "Supervisory Committee Report form" can be found at (attached).

Years of residency as an MSc student will be applied to the PhD program when transferring from the MSc to the PhD program. Credit for courses taken will be transferred to the PhD program on the recommendation of the supervisor and of the supervisory committee.

### **4.5 The Degree of PhD**

Admission to the PhD program in the Department of Oncology is contingent upon approval of the application by the appropriate GCC and by the FGSR.

For detailed information about the PhD requirements in the Cancer Sciences, please refer to section 6.2.

For detailed information on the Medical Physics PhD program requirements, please refer to Section 7.6.

PhD candidates must prepare and defend a thesis describing the results of the candidate's research project. The student will be examined orally on the contents of the thesis by a thesis defense committee formed according to FGSR regulations (Sections 8.2 the Structure of Examining Committees).

Students are expected to prepare manuscripts on their research and submit them to scientific journals. Although not a formal requirement, the goal of every PhD student should be to obtain three first-authored publications in good quality journals. Reaching this goal will ensure that the student is competitive for post-PhD fellowship awards and post-PhD positions, and has more choices with regards to job opportunities and/or career paths. Although not every student will meet this goal, the Department requires that a PhD candidate have at least one first-authored manuscript under revision by a peer-reviewed journal before the Department will accept the PhD thesis for examination. The manuscript must be relevant to the subject matter of the thesis.

#### ***4.6 Timeline for the PhD degree***

The minimum residency requirement for a PhD degree in Oncology is two academic years of full time attendance. The PhD program will usually take four-six years to complete. However, the length of the PhD program is necessarily dependent upon the progress achieved within the research project. It is to the advantage of PhD students who experience difficulty making progress in their project to inform the Associate Chair of Graduate Studies of their concerns early so that supportive action can be implemented. The University imposes time limits on the period of graduate training. For a PhD degree, the time limit is six years from the time the student first registers in the program as an MSc or PhD Candidate. Extensions can be obtained from the FGSR by written request under extenuating circumstances.

### **5. THE SUPERVISOR/SUPERVISORY COMMITTEE**

#### ***5.1 Choosing a supervisor***

Students enrolling in the Specialization of Cancer Sciences must identify a prospective supervisor(s) willing to pay their stipend prior to admission. Supervisors will be asked to indicate their commitment (both academic and financial) to the student in the form of a letter addressed to the Associate Chair of Graduate Studies.

In Medical Physics each student chooses a research supervisor by May of his/her first year. By July of their first year, a supervisory committee should be appointed for each student. By the end of the first year of the program and each year thereafter, the supervisory committee must meet with the student and make a formal recommendation on the candidate's potential for progress in graduate work.

#### ***5.2 Criteria for supervision***

It is the responsibility of the GCC's to ensure the quality of graduate level supervision including observance of the following Guidelines for the Qualification of Supervisors.

Supervisors must have an appointment within the Department of Oncology and

- Be currently active in research
- Have adequate time to supervise the student

- Have sufficient peer-reviewed research funding for the proposed project
- Have the space and time to accommodate the number of students proposed
- Hold a degree that is equivalent or higher than that for which the student is a candidate or have a demonstrated record of successfully supervising students for the degree. Individuals with M.D. degrees may supervise PhD students when Departmental justification is provided and approved by the Vice-Dean, Graduate Studies and Research of the Faculty of Medicine and Dentistry.

Normally there is one supervisor. However, an additional supervisor may be added at the request of the Associate Chair and approved by the Vice-Dean of Graduate Studies and Research of the Faculty of Medicine and Dentistry. Supervisors should not normally take on more than three graduate students until they have successfully graduated a student from the University of Alberta.

### 5.3 *Selecting a supervisory committee*

Selection of a supervisory committee should occur within the first year, and preferably soon after the student has settled into a defined project. **The supervisory committee will consist of the supervisor, and at least two other members of the University academic staff.** At least one member of the supervisory committee, in addition to the supervisor, must hold a PhD in a basic science discipline. Once the supervisory committee has been selected, the *Approval of Supervisor/Supervisory Committee* form will be filled out by the Graduate Program Administrator, and following approval by the GCC. This is a Departmental Responsibility. A copy will be forwarded to FGSR for record keeping. The composition of the committee is formulated jointly by the supervisor and the student, but requires approval by the Department. It is the Department's responsibility to ensure that the members of the supervisory committee are competent and experienced to act at the required level. The Department reserves the right to discuss the composition of supervisory committees at GCC and to make recommendations for additions or changes in the composition of the committee. In addition to forming the nucleus of the examining committees for the candidacy examination (in the case of PhD students) and for the thesis examination (in the case of both the PhD and MSc degrees), the supervisory committee is charged with monitoring the student's progress in their research program. The supervisory committee makes recommendations on the choice of course work and other matters pertaining to the timing of the candidacy and final thesis examinations.

### 5.4 *Supervisory committee meeting requirements*

Each supervisory committee must meet at least once a year, but students may request more frequent meetings if they think it necessary. Meetings are not examinations, and students are usually present throughout the whole meeting. The purpose of the supervisory committee is to assist the student by providing collective advice, as well as helping with decisions to be made in the research project and intended study path. To prepare for the supervisory meeting, the student will write an annual progress report (3 to 5 double-spaced pages) summarizing their work, their accomplishments over the previous year and proposed research for the next year. The report should also include lists of any awards, publications or abstracts and any other information deemed to be of interest to the supervisory committee. The report must be distributed to the members of the supervisory committee at least one day in advance of the meeting.

MSc students who are seeking elevation to the PhD (normally in the first or second year), as well as PhD students in their first or second year, must write a PhD proposal which should include a progress report as described above. The PhD proposal will be evaluated by the supervisory

committee for breadth, scope, feasibility and suitability. Progress reports and/or PhD proposals should be appended to the Supervisory Committee reports (described below).

It is the responsibility of the supervisor to set a date for the supervisory committee meeting in consultation with the student and other members of the committee and to book the room for the meeting. The student is responsible for booking the AV equipment.

### **5.5 *Supervisory Committee reports***

To assist in monitoring student progress a departmental *Supervisory Committee Report* signed by the committee members and the student must be filed with the Graduate Program Administrator after each meeting of the supervisory committee. The original report, minutes of the meeting, and a copy of the student's progress report and/or PhD proposal, must be forwarded to the office of the Graduate Program Administrator as soon as possible after the supervisory meeting. A copy of the report will be kept in the student's file and brought to the attention of the GCC if problems are flagged. The supervisor of a student whose committee has not met for over a year will receive an official reminder from the GCC. This will be followed by an official reminder from the Department Chair if necessary.

### **5.6 *Student-supervisor conflicts***

The relationship between a graduate student and supervisor represents a long-term commitment on both sides. Occasionally, problems will arise between a student and supervisor, which, if left unresolved, may severely jeopardize the student's chance of completing a graduate degree. A student encountering problems which cannot be resolved through discussion with the supervisor should immediately consult the Graduate Coordinator before taking any other action. The Graduate Coordinator, Division Director, and Associate Chair of Graduate Studies may meet with the supervisor and members of the supervisory committee to discuss the problem further. Courses of action include suggestions for changes to the composition of the supervisory committee, transfer of the student to another supervisor within the Department, or transfer of the student to another University Department. In cases where the conflict cannot be resolved to the student's satisfaction, the student may be asked to withdraw from the program without prejudice. Should the student-supervisor relationship become disrupted, the appropriate GCC will act as the student's interim supervisor.

### **5.7 *Resources for Students***

The Graduate Students' Association [GSA] is committed to providing high quality services to the University of Alberta's graduate student community. The GSA has a sponsored an ombudsperson dedicated to graduate student issues. This free service offers help to graduate students facing academic, research, and personal issues. Further details on the types of services and support available from the GSA is available on their website at <http://www.gsa.ualberta.ca/>

## **6.0 THE CANCER SCIENCES GRADUATE PROGRAM**

### **6.1 *Role of the Cancer Sciences Graduate Coordinating Committee (CSGCC)***

The role of the GCC is to regulate CS admissions and to oversee the quality of that specialization. Its specific mandate is to uphold standards of academic excellence within the program by effectively monitoring individual student progress, by ensuring observance of the policies of the University and the FGSR, and by resolving conflicts, which might arise between students and their supervisors. To this end the CSGCC will:

1. Ensure that student supervisory committees are struck within one year of commencing the graduate program.
2. Ensure that each supervisory committee meets at least once a year, and submits a report of that meeting to the CSGCC.
3. Review the academic and research performance of each graduate student annually through evaluation of the reports of the supervisory committees at the May or June meeting of the CSGCC.
4. Make recommendations, in consultation with the supervisor, for the appropriate action in the event that a student fails a course or courses.
5. Make suggestions to the supervisor regarding changes in the status of a student.
6. Assess PhD proposals and make recommendations to the supervisor and supervisory committee regarding the suitability of the candidate, the approach and the project for a PhD degree. The committee can request changes and re-submission of a proposal to address their concerns.
7. Act as the interim supervisor for rotational students, and for students who are without a supervisor.
8. Review the membership of supervisory committees, PhD Candidacy Examination committees, and MSc and PhD thesis committees.
9. Set regulations regarding required courses for the degree.
10. Facilitate career development of graduate students.

## **6.2**     *Course requirements*

Selection of graduate student courses is done in consultation with the supervisor and the Supervisory Committee. Additional courses may be assigned or recommended by the CSGCC based upon the background of the student and the area of specialization undertaken. PhD students in Cancer Sciences must obtain a pass grade [2.3/4; (C+)] or better in each of a minimum of three approved graduate level courses (12 course weights), which must include Oncology 660/661 and either Oncology 520 or Oncology 524. To remain enrolled in the PhD program students must maintain a GPA of at least 2.7/4, or (B-). In addition to the 12 course weights, students registered in the PhD program must give one seminar each year through Oncology 660 (as detailed in Section 7.2 - Course Requirements). Undergraduate courses may be substituted for graduate level courses on a case-by-case basis when recommended by the supervisory committee and approved by the CSGCC. The supervisor should advise the CSGCC of the reasons for substitution, such as a need to study an unfamiliar area of knowledge relevant to the research project. For PhD students who already hold an MSc degree in the same or related field, the minimum course requirement is six course weights in graduate courses and should include Oncology 660/661 and either Oncology 520 or Oncology 524.

The following **course requirements** must be observed by all Cancer Sciences graduate students:



1. All CS graduate students are required to take either Oncology 520 (Tumour Biology) or Oncology 524 (Nutrition and Metabolism Related to Cancer) for credit. Oncology 520 is a 3-credit course offered in the winter term of alternate years. Oncology 524 is a 3-credit course offered in the fall term of alternate years. The decision as to which course is taken should be made in consultation with the supervisor and the Supervisory Committee. Students are not precluded from taking both Oncology 520 and 524 towards accumulating their required course weights.\*
2. All CS graduate students are required to take Oncology 660/661 (Current Topics in Cancer Research) for credit. Oncology 661 is a one-credit fall term course. Oncology 660 is a two-credit winter term course. Students would normally take Oncology 660/661 for credit in the second year of their program. Course substitution may be allowed in the case of students specializing in programs other than Cancer Sciences. Requests for course substitution will be made by the supervisor and assessed by the CSGCC.
3. To develop their oral presentation skills, CS PhD students are required to give one formal seminar (normally through Oncology 660) every year. First year students will normally be exempt from this requirement.
4. CS graduate students are expected to attend all Oncology 660/661 research seminars whether or not they are enrolled in Oncology 660/661.

\* The Department recognizes that Oncology 520 and 524 may not be the most appropriate course for every student enrolled in the Specialization of Cancer Sciences. Thus, while either of these courses can serve as the default didactic course requirement, the CSGCC will consider requests from supervisors to substitute other courses. Those courses must be the equivalent of Oncology 520 and 524 in scope and rigor, be focused on the topic of cancer, and be approved at a meeting of the CSGCC. The approval process requires the supervisor to make a request to the Chair of the CSGCC in writing and to provide supporting documentation (i.e., course syllabus) for presentation to the CSGCC. The supervisor will be invited to attend the meeting of the CSGCC to present their case.

The list of approved courses for either the MSc or PhD degree in Oncology is listed under <http://www.graduate-studies-in-cancer-research.org/courses.html?submenuheader=0>. If a student is interested in taking a course that is not listed, he/she must first obtain approval from the supervisory committee. The supervisor should then contact the CSGCC for course approval.

### **6.3 Laboratory rotations**

Students entering Cancer Sciences may opt to rotate through the laboratories of up to three eligible academic staff before deciding whom to choose as their supervisor. The purpose of the rotation is to familiarize the student with the various areas of research and expertise within the Department and to optimize student/project compatibility. The act of rotation constitutes an act of good faith on the part of both the student and the potential supervisor and is not a binding contract. The final pairing of students and supervisors will, therefore, be agreed upon in a manner that is mutually acceptable to both parties and to other potential supervisors. During the rotation period the CSGCC will serve as the student's interim supervisor and at the end of the rotation will administer student-supervisor pairing. Each rotation will be one month in length and will run from Sept 1 to 30, Oct 1 to 31, and Nov 1 to 30, or from Jan 1 to 31, Feb 1 to 28/29, and March 1 to 31. In each rotation the students will be expected to learn something about the techniques being used in the laboratory, to familiarize themselves with ongoing research

projects, and to discuss prospective graduate student projects with their rotation supervisor. Students who choose to rotate should first obtain the *Graduate Student Rotation* form from the Graduate Program Administrator. It is a departmental requirement that each supervisor indicate his or her willingness to supervise the student for a given period by signing the Rotation Form prior to the rotation.

Upon completion of laboratory rotations, the student, in consultation with rotation supervisors, will choose a laboratory in which to carry out the research project. The student will inform the Chair of the EOGCC of his or her decision. The Chair of the EOGCC will inform the other rotation supervisors and the Graduate Program Administrator of the student's decision.

#### **6.4 The PhD proposal**

Students registered in Cancer Sciences must submit a PhD proposal delineating their proposed research to their supervisory committee prior to taking the PhD candidacy examination. The PhD proposal will be evaluated by the supervisory committee and by the CSGCC for scope, feasibility, and innovation. PhD students must pass an oral candidacy examination in order to become PhD Candidate (Sections 6.5-6.10). Normally the candidacy examination is scheduled after the completion of coursework and must be scheduled prior to the end of the three-year term. A PhD student must pass their candidacy examination at least six months before the final oral thesis defense.

Students registered in the PhD program, and MSc students wishing to transfer to the PhD program, must submit a PhD proposal to their supervisory committee and to the CSGCC usually within 12-30 months of registering in the graduate program.

The PhD proposal must be written by the student and should clearly delineate the role of the student and the scope of the project. Input from the supervisor and supervisory committee is encouraged. As a general guideline, the PhD proposal should include 1-2 pages Introduction, 1-2 pages Progress Report, and 3-5 pages of Proposed Experiments including hypothesis, objectives, description of experiments and summary statement describing the importance of the proposed work. Appendices should be restricted to figures, references, questionnaires and tables. The student's *Curriculum Vitae* including publications, abstracts, presentations, awards, membership on committees, etc. must also be appended to the PhD proposal. The PhD proposal must be submitted to the supervisory committee at least one week prior to the scheduled supervisory committee meeting.

The PhD proposal will be reviewed by the CSGCC to determine whether it has the originality and scope appropriate to the degree of PhD. The CSGCC will pay particular attention to the following in their appraisal:

1. That the proposed topic addresses a significant problem and therefore advances the field.
2. That the methodology you propose enables you to test your hypothesis.
3. That your methods of data analysis are appropriate to your data set so that you can draw meaningful conclusions.
4. That your time frame is sufficiently outlined and realistic.
5. That you have access to all the expertise required to complete the project and if not how you will access that expertise.

The supervisory committee will provide input to the student during the supervisory committee meeting and make a recommendation to either approve or reject the PhD proposal. If the PhD proposal is not approved, sufficient details must be provided to the student and supervisor to facilitate re-submission of an acceptable proposal. Once the proposal has been approved by the supervisory committee, each supervisory committee member will sign Section 3 of the *Supervisory Committee Report*. The supervisor will then submit the following documents to the CSGCC: (i) PhD proposal including *Supervisory Committee Report*, (ii) minutes of the supervisory committee meeting(s) at which the PhD proposal was discussed/accepted, and (iii) student *Curriculum Vitae*. PhD proposals and supervisory committee membership will be evaluated by the CSGCC and feedback provided to the student and supervisor.

The role of the CSGCC is to ensure that the proposal is appropriate to the degree of PhD in originality, scope and rigor. Constructive feedback will be provided by the Chair of the CSGCC who will meet with the student, supervisor and/or supervisory committee, as required. Copies of the Chairs' recommendations will be forwarded to the Associate Chair Graduate Studies and to the Departmental Graduate Administrator for inclusion in the student's file. The CSGCC reserves the right to request resubmission of the proposal modified to address the committee's concerns.

For students already in the PhD program, approval of the PhD proposal means that the student is allowed to proceed to the PhD candidacy examination. For students in the MSc program, approval of the PhD proposal means that the students become PhD candidates and can proceed to the PhD candidacy examination. Once approval to transfer to the PhD degree has been obtained from the supervisory committee, CSGCC and Associate Chair, the Graduate Program Administrator will fill out a *Change of Category* form. This is a Departmental responsibility and a copy will be forwarded to FGSR for record keeping.

### **6.5     *The PhD Candidacy Examination***

The FGSR requires that all PhD students take an oral candidacy examination. For students in the specialization of Cancer Sciences, the candidacy exam requires preparation of a written document in the form of a research grant proposal which the student defends orally before the PhD Candidacy Examination Committee. The grant proposal may be on a topic that is related to the student's field of research but should not overlap substantially with their PhD proposal. The PhD candidacy grant proposal may be based on work that the student is currently doing; however, this work should serve only as the starting point for the development of new ideas and approaches. As an example, the first objective of the grant proposal may be directly related to the PhD proposal, with objectives 2 and 3 taking the project in new directions. The expectation is that the student will write the proposal on novel and innovative aspects of their research that are independent of their supervisor.

Students are required to take the PhD candidacy examination within 24-36 months of joining the graduate program as either MSc or PhD students. Extensions will be granted only under exceptional circumstances. To obtain an extension, the student and supervisor should write letters to the CSGCC explaining the reasons for the delay. Students who fail to meet the deadline will be requested to transfer to the MSc degree.

## 6.6 *Preparing for the PhD candidacy exam*

Students who are ready to take their candidacy exam should obtain the [Guidelines for the PhD Candidacy Exam](#) document. (attached) These guidelines should be carefully read by both the student and the supervisor. The student should meet with his/her supervisor and supervisory committee at least 8-12 weeks prior to the projected PhD candidacy exam date in order to discuss: (i) the intended date of the candidacy exam and (ii) the hypothesis, objectives and approaches of the grant proposal. The latter should be provided to the supervisory committee in the form of a written outline. The supervisor/supervisory committee can provide general input into the grant proposal, keeping in mind that the purpose of the exercise is to encourage the student to develop their own ideas and approaches within the context of their research field. Once a suitable approach and/or topic have been chosen, the student will spend ~4 weeks writing the grant proposal. Please note that once the supervisory committee has approved the PhD Candidacy Examination topic, there should be no further contact with the supervisor, supervisory committee, candidacy examination committee or Department of Oncology faculty regarding the grant proposal. However, students are encouraged to seek input from other students and post-PhD fellows. Mock examinations with other students and post-PhD fellows are also encouraged. Also note that previously approved candidacy grant proposals are kept on file in the Graduate Administrator Office. Students are advised to read a few of these grant proposals prior to writing their own grant proposal.

The Graduate Program Administrator must be provided with the following three items at least six weeks before the exam date:

- (i) A copy of the "*Guidelines for the PhD Candidacy Exam*" form signed by the student and supervisor.
- (ii) A copy of the "*Supervisory Committee Approval of PhD Candidacy Exam Topic*" form signed by each member of the supervisory committee. The title of the PhD candidacy grant proposal, the PhD Candidacy Examination date, and the date on which the proposal will be handed to the members and chair PhD Candidacy Exam Committee must be indicated. This form is included in the "*Guidelines for the PhD Candidacy Exam*".
- (iii) A copy of the "*Approval of the Two Faculty Members to be Added to the PhD Candidacy Exam Committee*" indicating the names of the two examiners and their fields of expertise. The fields of expertise of the two additional members must be appropriate for the examination topic. This form is included in the "*Guidelines for the PhD Candidacy Exam*".

Items (i) and (ii) will be kept on record. Item (iii) will be reviewed by the Associate Chair Graduate Studies and/or CSGCC to ensure that the PhD Candidacy Examination Committee has sufficient expertise in the student's field of research and with PhD candidacy examinations in general. Once the examination committee has been approved, the Graduate Program Administrator will fill out the *Notice and Approval of PhD Candidacy Examining Committee* form and submit it to the FGSR for final approval.

Copies of the proposal must be handed in to the PhD Candidacy Examining Committee, including the Chair of the Committee, **at least two weeks before the examination**. Failure to hand in the grant proposal on time, in the absence of exceptional circumstances, will result in the candidacy exam being cancelled at the discretion of the CSGCC. The candidacy exam will then have to be re-scheduled with a **different topic** for the grant proposal.

### **6.7 The PhD Candidacy Examination Committee**

The composition of the examining committee is that of the supervisory committee (supervisor plus at least two additional members) plus two academic members of the University. The additional members must be arms-length to the candidate. However, it is no longer an FGSR requirement that one member of the PhD Candidacy Examination Committee be from outside the Department of Oncology. (<https://uofa.ualberta.ca/graduate-studies/about/graduate-program-manual/section-8-supervision-oral-examinations-and-program-completion/8-2-the-structure-of-examining-committees>). The Chair of the candidacy exam is appointed by the Associate Chair of Graduate Studies. The role of the Examination Chair is to serve as guardian of the process; the Chair of the examination committee may participate in discussions related to examination outcome, but only as a non-voting member. The student's supervisor is a voting member of the examination committee.

### **6.8 The PhD candidacy grant proposal**

The candidacy exam grant proposal is similar in nature to that submitted to a granting agency such as the CIHR (specific details and formatting requirements are provided in the 'Guidelines for the PhD Candidacy Exam' document). Briefly, the grant proposal may be up to 11 pages long with single line spacing and 1-inch margins. Appended references, explanatory diagrams and figures do not count towards the page limit. The proposed research should be capable of being accomplished by three people over three years.

In addition to the 11-page proposal, the student must write a **one-page abstract** that includes a brief summary of background, hypotheses, and objectives. Objectives should include approaches and methodology.

Writing a successful proposal on a scientifically relevant question is a difficult and challenging endeavor. The essential background of the scientific problem should be summarized in a few pages. The description of the proposed work should occupy about 60% of the proposal. General statements about relevance should be restricted to one succinct introductory paragraph and another at the end. Most importantly, the student should pose the specific questions to be answered, provide a clear rationale for the scientific approach to be taken, provide a description of the techniques and controls to be employed, and discuss the interpretations that might be drawn. A brief discussion of the limitations and pitfalls of the approach should also be included. Students are encouraged to visit the CIHR website or other similar websites to obtain general information on how a grant proposal should be written.

### **6.9 Conducting the PhD candidacy examination**

At the beginning of the examination, the Chair of the PhD candidacy examining committee explains to the student and the committee how the exam will be run. The candidate is asked to leave the room and the supervisor presents the student's academic record. The student is then asked to rejoin the committee and the exam begins. The student presents a 20-25 minute summary of the proposal, after which the first round of specific questioning begins (about 20 minutes per examiner). It is usual to offer the student (and examiners) a 5-minute break between rounds of questioning. Questions may be directly related to the proposal, but should additionally test the student's knowledge and understanding of more comprehensive issues. One of the aims of the examination is to determine whether the student is able to identify an important question,

come up with plausible hypotheses, and propose viable experiments to test those hypotheses. Equally important aims are to assess the student's overall knowledge of the field and the student's ability to think and to reason.

At the end of the exam, the student leaves the room while the examiners discuss the candidate's defense of the proposal and knowledge of the field. Once a decision has been reached, the student is readmitted and the committee's decision is communicated by the Chair who summarizes the deliberations leading to that decision. If the student passes the candidacy exam, the Graduate Program Administrator will fill out the *Report of Completion of Candidacy Examination* form. This is a Departmental responsibility. A copy will be forwarded to the FGSR for record keeping. Once the form has been processed by FGSR, the student's transcript will indicate that the student has successfully passed the candidacy examination.

In the event that the oral defense or written proposal is deficient, the student may be asked to fulfill additional requirements before a final decision can be reached. This is called a Conditional Pass and must be agreed to by a majority of examiners. For example, the committee may ask the student to repeat a part of the examination at a later date. If the PhD candidacy examining committee agrees to a Conditional Pass, the Chair of the examining committee must provide in writing the reasons for the recommendation to the Associate Dean of the FGSR, the Associate Chair Graduate Studies and to the student. This information must include: (i) the reasons for this recommendation; (ii) the details of the conditions; (iii) the timeframe for the student to meet the conditions; (iv) 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); (v) and the supervision and assistance the student can be expected to receive from committee members. The conditions require final approval by the Dean of FGSR. If the student meets the conditions set forth, the Graduate Program Administrator will fill out the *Report of Completion of Candidacy Examination* form and forward to FGSR. If some or all of the conditions have not been met, then the outcome of the candidacy examination is Fail.

If there are serious flaws with either the written document or the student's performance at the oral exam, the student will fail the examination. A majority of examiners must agree to the Fail and Repeat of Candidacy Exam outcome. If the PhD Candidacy Examination Committee agrees to a Fail, the Chair of the PhD Candidacy Examination Committee must provide in writing the reasons for the recommendation to the department. The Associate Chair Graduate Studies will then provide this report to the Dean of FGSR and the student, together with department's recommendation for the student's program. For failed exams, the Associate Dean of FGSR, will normally meet with the student and Department representatives before acting upon any departmental recommendation. If the student's candidacy exam performance or written document was inadequate but the student's performance and work indicate that the student has the potential to perform at the PhD level, the candidacy exam committee may recommend that the student repeat the examination. The exam Chair will notify the student and Associate Chair Graduate Studies in writing of the specific exam deficiencies. The repeat Candidacy Exam is to be scheduled no later than 6 months from the date of the first candidacy exam. Two options will be considered in the event that the student fails the second candidacy exam: (i) change of category to an MSc program; or (ii) termination of the PhD program. For both outcomes, all or all but one of the examiners must agree to the decision.

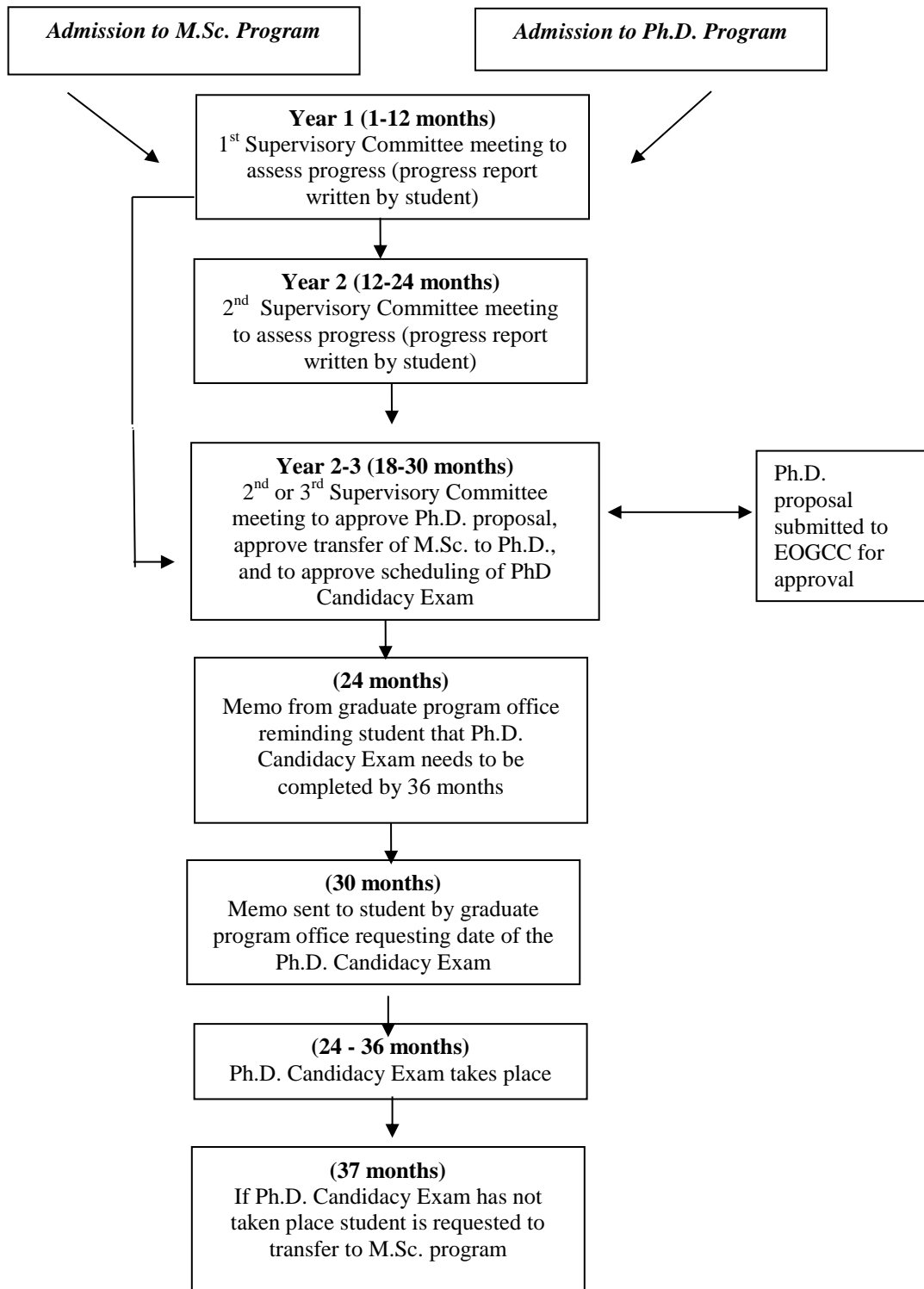
At the end of the candidacy exam, the copy of the grant proposal handed in to the Chair of the PhD Candidacy Examining Committee will be kept on file in the Department of Oncology office. With permission of the student, the grant proposal will be made available to future candidates.

A detailed overview is also provided on the FGSR website (<https://uofa.ualberta.ca/graduate-studies/about/graduate-program-manual/section-8-supervision-oral-examinations-and-program-completion/8-3-conduct-of-examinations#8.3.3> Doctoral Candidacy Exam).

### ***6.10 Extending the PhD candidacy examination beyond 36 months***

According to the 3-year rule introduced by FGSR, all program requirements with the exception of the PhD defence must be completed within 3 years. Students should therefore take the PhD candidacy examination within 24-36 months of entering the graduate program if they were admitted as a PhD student. Under FGSR rules, MSc students that transfer to the PhD program have an additional year to take their candidacy. However, every effort should be made to complete their program requirements within 3 years. Extensions will be granted only under exceptional circumstances. To obtain an extension, both the student and supervisor need to write a letter to the CSGCC explaining the reasons for the delay in taking the PhD candidacy examination. A likely consequence of failing to meet the deadline for the PhD candidacy examination is transfer to the MSc degree and defense of the MSc thesis before admission to the PhD program.

## Experimental Oncology PhD Candidacy Exam Time-Line





### **6.11 The MSc final exam**

There are six steps in preparing and then eventually submitting a thesis to the FGSR in order to complete the graduate degree program. To review the four steps in preparation of a thesis, visit <http://www.gradstudies.ualberta.ca/degreesuperv/thesis/prepare.htm>

### **6.12 The MSc Final Exam Committee**

MSc final examinations are conducted with a minimum of three examiners. It is no longer an FGSR requirement that the examiners be external to the Department. However, at least one examiner must be arms-length to the candidate. The Chair of the MSc Examination Committee is appointed by the Associate Chair Graduate Studies. The Chair does not vote or sign the thesis. Under exceptional circumstances, the Chair of the Examination Committee may also serve as an examiner and a voting member. The student's supervisor is a voting member of the examination committee.

It is the Chair's responsibility that all departmental and Faculty regulations relating to the examination are followed.

All members of the examining committee must be in attendance, which includes members participating through teleconferencing. Members of the Faculty of the student's home department as well as members of the FGSR have the right to attend but should notify the Chair of the examining committee of their intention. Other persons may attend with the permission of the Dean of FGSR or chair of the examining committee. The Dean may participate fully in the examination. Other persons may ask questions but cannot stay for the deliberations.

Recommended names of the members of the final oral examining committee will be forwarded to FGSR for approval on a "*Notice and Approval of an MSc Final Oral Examining Committee*" form at least three weeks prior to the final oral examination. **A copy of the thesis must be supplied to each examiner at least three weeks prior to the oral examination.**

### **6.13 Conducting the MSc final oral examination**

The Chair will provide a brief description of the examining procedure and establish the order of questioning (from most external to most internal). The student will be asked to leave the room and their academic history will be reviewed by the supervisor. The Chair will remind the supervisor and ensure that the appropriate documentation (students file) is brought to the examination. The candidate will then be asked to return and give a 20-25 minute presentation. Alternatively, the student may give a seminar to the Department immediately prior to the examination. After the presentation, the oral exam will begin. There will usually be two rounds of questioning (approximately 20 minutes per examiner in the first round, followed by a shorter round). A short break between the two rounds of questioning may be requested by the student or examiners. At the close of the examination, the student is asked whether he/she has any final comments. The student then leaves the room while the examiners discuss the student's performance and quality of thesis. For the adjudication, no final verdict is rendered without each examiner giving an opinion. The student is then readmitted and the committee's decision is communicated by the Chair who briefly summarizes the deliberations leading to that decision. It is useful for the Chair to keep a record of the exam noting time-line, order of questioning, summarizing the opinions of each examiner and the substance of the discussion. This record will be kept in the Department.

The decision of the examining committee will be based on the content of the thesis and on the candidate's ability to defend it. There are four possible outcomes for the MSc final exam:

**Pass:** Thesis is approved as is. Examining committee members sign the signature page of the thesis immediately. All or all but one of the examiners must agree to this outcome (if one of the examiners fails the student but the student passes, that examiner does not have to sign the thesis.). The 'Thesis Approval/Program Completion' form is completed by the department and submitted to FGSR.

**Pass subject to revisions:** All or all but one of the examiners must agree to this outcome. Members who wish to sign can do so immediately. The committee Chair or supervisor withholds the signature until the thesis is amended satisfactorily and all other committee members have signed. If problems arise in the amendment process, the Chair or supervisor may wish to solicit opinions from the other committee members. The student must complete revisions within 6 months of the date of the final examination. Once revisions are satisfactorily completed, the 'Thesis Approval/Program Completion' form is completed by the department and submitted to FGSR.

**Adjourned:** A majority of examiners must agree to this outcome. No member of the committee signs the signature page. If the outcome is 'Adjourned', deficiencies were noted in the oral defense and/or the thesis needs major revisions. The exam will be reconvened at a later date. The student and FGSR will be advised of the adjournment and the conditions. The FGSR needs to be notified when the date is set for the adjourned final oral examination. Normally, the Dean, Associate Dean or Delegate will attend the exam. Specific requirements are described on the FGSR website (<https://uofa.ualberta.ca/graduate-studies/about/graduate-program-manual/section-8-supervision-oral-examinations-and-program-completion/8-3-conduct-of-examinations#8.3.2 Thesis-Based Master's Exam>).

**Fail:** All or all but one of the examiners must agree to an outcome of 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.

#### **6.14 Submitting the MSc thesis to FGSR**

Students are ultimately responsible for preparing and submitting their theses to the FGSR. Students should review these steps early—in the planning stages of thesis writing—and start once your supervisor/supervisory committee indicates your thesis is ready for defense. Further information is available on the FGSR website (<https://uofa.ualberta.ca/graduate-studies/about/graduate-program-manual/section-8-supervision-oral-examinations-and-program-completion/8-4-thesis-requirements>). Students must submit their thesis to the FGSR for approval before the deadline dates set out in the Academic Schedule of the Calendar.

Students must also ensure that they are registered in Thesis in their last registration prior to convocation (see "Thesis Requirements").

Please note that the Department of Oncology requires one hard copy of the student's thesis.

### **6.15 Restricting Access to a Thesis**

Students wanting to restrict access to their theses for up to one year must complete and submit the 'Restrict Thesis Access' form available in the FGSR Forms Cabinet (<https://uofa.ualberta.ca/graduate-studies/about/resources-for-faculty-and-staff/forms-cabinet>) to FGSR with supporting documentation. The request must be made prior to the submission of the Thesis Approval/ Program Completion form to FGSR. If the thesis is submitted through D-space and the request to restrict access has been approved, then FGSR will hold the thesis (in D-space) and release it through D-space at the end of the embargo period.

### **6.16 The PhD final exam**

Students should review the steps in preparing and submitting their thesis by visiting (<https://uofa.ualberta.ca/graduate-studies/about/graduate-program-manual/section-8-supervision-oral-examinations-and-program-completion/8-4-thesis-requirements>) prior to writing their thesis.

The thesis must be reviewed by each member of the supervisory committee prior to forwarding it to the external examiner. The supervisor and supervisory committee must indicate that the thesis is of adequate substance and quality to warrant examination by signing the "*Preliminary Acceptance of Thesis*" signature sheet. **The external examiner and other committee members must receive the thesis at least four weeks before the examination date.**

Students are expected to prepare manuscripts on their research and submit them to scientific journals. Although not a formal program requirement, the goal of every PhD student should be to obtain three first-authored publications in good quality journals. Reaching this goal will ensure that the student is competitive for post-PhD fellowship awards and post-PhD positions, and has more choices with regards to job opportunities and/or career paths.

### **6.17 The PhD Final Examination Committee**

The PhD final examination committee has a minimum of five faculty members, including two arms length examiners and one external examiner from outside the University of Alberta. The committee must have at least one 'arms length' member (in addition to the external examiner) who is not a member of the supervisory committee and comes new to the examination. The Chair of the PhD examination committee is appointed by the Associate Chair of Graduate Studies. The Chair may participate in discussions related to examination outcome, however, the Chair does not vote or sign the thesis unless the Chair is a member of the examining committee. The student's supervisor is a voting member of the examination committee. Specific guidelines for examination committee membership are provided on the FGSR website (<https://uofa.ualberta.ca/graduate-studies/about/graduate-program-manual/section-8-supervision-oral-examinations-and-program-completion/8-2-the-structure-of-examining-committees>).

Members of the faculty of the student's home department, as well as members of the Council of the Faculty of Graduate Studies and Research have the right to attend but should notify the Chair

of the examining committee of their intention. Other persons may attend with the special permission of the Dean of FGSR or the Chair of the examining committee. The Dean (FGSR), or the Dean's delegate, may participate fully in the examination. Other persons who are not members of the examining committee may participate in the questioning but are not permitted to stay for the deliberations.

All members of the examining committee must be in attendance, which includes members participating through teleconferencing.

It is the supervisor's responsibility to arrange the date, time and place of the thesis examination. The names of the recommended examining committee members, as well as date, time and place of examination, should be provided to the Graduate Program Administrator at least four weeks before the date of the final oral examination. The Graduate Program Administrator will submit the "*Notice and Approval of PhD Final Oral Examining Committee*" form to the FGSR at least three weeks before the date of the final oral examination.

#### **6.18 PhD Final Exam: Inviting the External Examiner**

The responsibility for appointing the external examiner rests with the Faculty of Medicine and Dentistry. The External examiner should be a recognized authority in the student's field of research and an experienced supervisor of PhD students. The supervisor, in consultation with the Associate Chair nominates an external examiner and submits the name to the Associate Dean of Research in the Faculty of Medicine and Dentistry for approval. This is done on a "*Request to Invite Reader or Examiner for the Final PhD Oral Examination*" form at least two months in advance of the examination date. The submission must include a CV of the external examiner (including experience with graduate student education) and a short statement of the examiner's qualifications.

The external examiner must be in a position to evaluate the thesis objectively and to provide a critical analysis of the student's work. It is essential that the external examiner does not have a current or previous association with the student, supervisor, or the Department that would prevent objective analysis. A proposed examiner associated with the student as a research collaborator or co-author would therefore not be eligible. A proposed examiner with a recent association with the supervisor (e.g. as a former student or close collaborator) would also not be eligible.

Once the external examiner has been approved the Associate Dean of the Faculty of Medicine and Dentistry will issue a letter of invitation to the external. The external examiner shall receive the thesis at least four weeks before the final oral examination. The external examiner is asked to prepare a brief written evaluation (2-3 pages) of the thesis (scope, structure, methodology, quality, significance of impact) and submit this to the Graduate Coordinator prior to the exam or to the Committee Chair at the beginning of the exam. The external examiner will be asked to place the thesis temporarily in one of the following categories: (a) acceptable with minor or no revisions, (b) reserve judgment, or (c) unacceptable without major revisions. If the external examiner selects the unacceptable category, the examiner is asked to contact the Dean of FGSR immediately, since the final oral examination may have to be postponed. The written report will not be shown to the student prior to the examination. The external examiner should not contact the supervisor or student directly regarding the thesis.

Supervisors are encouraged to apply to the the Walter Mackenzie Visiting Speaker Fund through the Faculty of Medicine & Dentistry to obtain external examiner funding. Further information is available at: <http://www.med.ualberta.ca/research/fundingopportunities/visitingspeaker>

### **6.19 Conducting the PhD Final Oral Examination**

There are two components to the final oral examination: a seminar of the student's work presented to the Department and the oral examination. The seminar can be given immediately prior to the examination or at another suitable time within a few weeks of the oral examination.

The examination has to be held in an appropriate venue. The Chair will provide a brief description of the examining procedure and establish the order of questioning (from most external to most internal). The student will be asked to leave the room and the student's academic history will be reviewed by the supervisor. It is the Chair's responsibility to remind the supervisor of this duty and to ensure that the students record (file) is brought to the examination. The candidate will then be asked to return and either give a 20-25 minute presentation (if a seminar was not given to the Department immediately prior to the examination) or proceed directly to the examination. There will usually be two rounds of questioning (approximately 20 minutes per examiner in the first round; up to 20 minutes per examiner in the second round) with a five minute break between the two rounds of questioning. At the close of the examination, the student is asked whether they have any final comments. The student then leaves the room while the examiners discuss the student's performance and quality of thesis. For the adjudication, no final verdict is rendered without each examiner giving an opinion. The student is then readmitted and the committee's decision is communicated by the Chair who briefly summarizes the deliberations leading to that decision. It is useful for the Chair to keep a record of the exam noting time-line, order of questioning, summarizing the opinions of each examiner and the substance of the discussion. That record will be kept in the Department office.

Outcomes of the examination:

- Pass
- Pass subject to revisions
- Adjourned
- Fail

**Pass:** Thesis is approved as is. Examining committee members sign the signature page of the thesis immediately. All or all but one of the examiners must agree to this outcome (if one of the examiners fails the student but the student passes, that examiner does not have to sign the thesis.). The 'Thesis Approval/Program Completion' form is completed by the department and submitted to FGSR.

**Pass subject to revisions:** All or all but one of the examiners must agree to this outcome. Members who wish to sign can do so immediately. The committee Chair or supervisor withholds the signature until the thesis is amended satisfactorily and all other committee members have signed. If problems arise in the amendment process, the Chair or supervisor may wish to solicit opinions from the other committee members. The student must complete revisions within 6 months of the date of the final examination. Once revisions are satisfactorily completed, the

'Thesis Approval/Program Completion' form is completed by the department and submitted to FGSR.

**Adjourned:** A majority of examiners must agree to this outcome. No member of the committee signs the signature page. If the outcome is 'Adjourned', deficiencies were noted in the oral defense and/or the thesis needs major revisions. The exam will be reconvened at a later date. The student and FGSR will be advised of the adjournment and the conditions. The FGSR needs to be notified when the date is set for the adjourned final oral examination. Normally, the Dean, Associate Dean or Delegate will attend the exam. Specific requirements are described on the FGSR website (<https://uofa.ualberta.ca/graduate-studies/about/graduate-program-manual/section-8-supervision-oral-examinations-and-program-completion/8-3-conduct-of-examinations#8.3.4> Final Doctoral Exam).

**Fail:** All or all but one of the examiners must agree to an outcome of 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.

It is the duty of the Chair to inform the Department immediately after the examination of the examining committee's decision and for the Department to forward the decision to FGSR using a *Report of Completion of Final Oral Examination* form.

Specific requirements are described on the FGSR website (<https://uofa.ualberta.ca/graduate-studies/about/graduate-program-manual/section-8-supervision-oral-examinations-and-program-completion/8-3-conduct-of-examinations#8.3.4> Final Doctoral Exam)

### **6.20 Submitting the PhD thesis to FGSR**

Students are ultimately responsible for preparing and submitting their theses to the FGSR. Students should review these steps early—in the planning stages of thesis writing—and start once your supervisor/supervisory committee indicates your thesis is ready for defense. Further information is available on the FGSR website (<https://uofa.ualberta.ca/graduate-studies/about/graduate-program-manual/section-8-supervision-oral-examinations-and-program-completion/8-4-thesis-requirements>). Students must submit their thesis to the FGSR for approval before the deadline dates set out in the Academic Schedule of the Calendar.

Students must also ensure that they are registered in Thesis in their last registration prior to convocation (see "Thesis Requirements").

Please note that the Department of Oncology requires one hard copy of the student's thesis.

### **6.21 Restricting Access to a Thesis**

Students wanting to restrict access to their theses for up to one year must complete and submit the 'Restrict Thesis Access' form available in the FGSR Forms Cabinet

(<https://uofa.ualberta.ca/graduate-studies/about/resources-for-faculty-and-staff/forms-cabinet>) to FGSR with supporting documentation. The request must be made prior to the submission of the Thesis Approval/ Program Completion form to FGSR. If the thesis is submitted through D-space and the request to restrict access has been approved, then FGSR will hold the thesis (in D-space) and release it through D-space at the end of the embargo period.

## **7.0 THE MEDICAL PHYSICS GRADUATE PROGRAM**

### ***7.1 The Medical Physics MSc Program***

New Medical Physics graduate students begin their studies in September. In their first year, MSc students take 11 didactic courses and 2 laboratory courses. In addition, completion of BME 320 or 321 must also be taken at any time during the program. To view the list of Medical Physics courses, visit [http://www.mp.med.ualberta.ca/graduate\\_prog/courses.htm?submenuheader=1](http://www.mp.med.ualberta.ca/graduate_prog/courses.htm?submenuheader=1)

All students in degree programs (including time spent as a qualifying graduate student) must maintain a minimum cumulative grade point average of 2.7 throughout the duration of the program.

In addition to the required courses, each student must complete an MSc thesis focusing on Radiation Oncology Physics or Diagnostic Imaging Physics.

### ***7.2 The MSc Final Exam Committee Composition***

Before nominating the supervisor or examining committee, ensure that eligibility criteria, conflict of interest, and teleconferencing guidelines have been met.

Minimum three faculty member examiners:

- At least one from outside the department (see “Internal/External Examiners”)
- Roles of the three faculty members can be in almost any combination. Examples: co-supervisors; a co-supervisor who is also the internal-external; supervisor from outside the department
- Must be chaired by a faculty member from inside the department
- All members must attend the examination, which includes members participating through teleconferencing (see “Attendance at Examinations”)

It is the responsibility of the supervisor to ensure that:

- proper arrangements are made for the candidate's examination
- the exam is scheduled and held in accordance with FGSR regulations
- the candidate is not required to make these arrangements

In the absence of the supervisor, these responsibilities shall be carried out by the graduate coordinator or designate. It is the responsibility of the department to keep committee members informed of meetings of the committee and details of examinations.

At least three weeks prior to the final oral examination, it is the responsibility of the department to:

- recommend names of all members of the final oral examining committee and forward them to the FGSR for approval on a Notice and Approval of an MSc Final Oral Examining Committee form at least three weeks prior to the exam date. The form is available at <http://www.gradstudies.ualberta.ca/formscabinet.aspx> (Exams & Convocation).
- notify the examiners of the examination date



- supply examiners with a copy of the thesis a minimum of three weeks prior to the exam date so that they may have adequate time to appraise the thesis

The department recommends revisions to the final examining committee by completing a Notice and Approval of an MSc Final Oral Examining Committee form and submitting it to the FGSR.

### **7.3 The MSc Final Examination**

The committee will review the thesis and conduct an oral examination designed to test the candidate's knowledge of the thesis subject and of related fields. The language used to conduct the final oral examination shall be English. However, the committee may petition the Dean, FGSR, and on receiving written approval, may conduct the examination in a language other than English.

Except for the Dean, FGSR (or Vice-Dean or Associate Dean or pro dean), who may participate fully in the examination, persons other than the examiners may attend only with the approval of the Dean, FGSR, or the chair of the committee. Visitors may not participate in the committee's discussion concerning its decision on the student's performance and must withdraw before such discussion commences (see "Attendance at Examinations" and "Attendance of Pro Dean at Examinations").

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. Normally, if all but one member of the committee agrees on a decision, the decision shall be that of the majority. The dissenting committee member does not have to sign. If two or more dissenting votes are recorded, the department will refer the matter to the Vice-Dean, FGSR, who will determine an appropriate course of action.

One of the following outcomes of the final oral examination is appropriate:

- Pass
- Pass subject to revisions
- Adjourned
- Fail

**There is no provision for a final oral examination to be "passed subject to major revisions".**

**Pass:** If the student passes the examination, the department shall complete a Thesis Approval/Program Completion form and submit it to the FGSR. The form is available on the FGSR website at <http://www.gradstudies.ualberta.ca/formscabinet.aspx> (Degree/Certificate Completion).

**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. The department shall complete a Thesis Approval/Program Completion form and submit it to the FGSR indicating "pass subject to revisions". It is expected that the student will make the changes in time to submit the thesis to the FGSR on or before the deadline for the next convocation. These changes should be checked and approved by the committee chair or supervisor, who does not sign until the required changes are satisfactorily completed. Other

committee members may also wish to withhold their signature until they can verify that their required revisions have been made to their satisfaction.

**Adjourned:** The final oral examination should be adjourned in the following situations:

- The revisions to the thesis are sufficiently substantial (if further research or experimentation or major reworking of sections are required, or if the committee is not satisfied with the general presentation of the thesis) that it will require a reconvening of the examining committee. The committee should not propose that the candidate has passed; rather the committee shall adjourn the examination.
- The committee is dissatisfied with the candidate's oral presentation and defense of the thesis, even if the thesis itself is acceptable with or without minor revisions.
- Compelling, extraordinary circumstances such as a sudden medical emergency during the examination.

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 defense is unsatisfactory, it may be necessary to arrange some discussion periods with the candidate prior to reconvening the examination.
- Decide upon a date to reconvene. If the date of the reconvened oral 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. The final date set for reconvening shall be no later than six months from the date of the examination. A final decision of the examining committee must be made within six months of the initial examination. (FGSR Council, 1988/04/15).
- Make it clear to the student what will be required by way of approval before the examination is reconvened (eg, 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 Vice-Dean, FGSR in writing of the adjournment and the conditions.
- When the date is set for the adjourned final oral examination, the department will notify the FGSR. Normally the Dean, Vice-Dean, Associate Dean or Pro Dean attends the examination.

**Fail:** If the final examination committee agrees that the student has failed, the committee chair shall provide the reasons for this recommendation and the department's recommendation for the student's program in writing to the Vice-Dean, FGSR and to the student. The Vice-Dean, FGSR will arrange to meet with the candidate and with department representatives before acting upon any department recommendation. A decision of the FGSR which affects a student's academic standing (ie, required to withdraw) is appealable.

Many departments adhere to the following guidelines in having members of the examining committee sign the thesis signature page:

**Pass:** Thesis is approved as is. Examining committee members sign the signature page immediately. (If one of the examiners fails the student but the student passes, that examiner does not have to sign the thesis.)

**Pass subject to revisions:** Members wishing to do so may sign immediately. The committee chair or supervisor withholds signature until the thesis is amended satisfactorily and all other committee members have signed. If problems arise in the amendment process, the chair or supervisor may wish to solicit opinions from the other committee members.

**Adjourned:** No member of the committee signs the signature page.

**Fail:** No member of the committee signs the signature page. In cases where the Chair is not a member of the examining committee, the Chair's name does not appear on the thesis signature page, nor does the Chair sign it.

#### **7.4 MSc Thesis Submission**

Following completion of the final oral examination at which the thesis is passed or passed subject to revisions, the candidate shall make the appropriate revisions where necessary and submit the approved thesis to the FGSR within six months of the date of the final oral examination. Departments may impose earlier deadlines for submitting revisions. If the thesis is not submitted to the FGSR within the six-month time limit, the candidate will be considered to have withdrawn from the program. After this time, the candidate must apply and be re-admitted to the FGSR and register again before the thesis can be accepted. If the final oral examination is adjourned, the six-month time limit will take effect from the date of completion of the examination where the thesis was passed with or without revisions.

In order to convocate, students must submit their thesis to the FGSR for approval before the deadline dates set out in the Academic Schedule of the Calendar. Students must also ensure that they are registered in Thesis in their last registration prior to convocation.

Students wanting to restrict access to their theses for up to one year must complete and submit the Request to Restrict Access to a Thesis form (found in the FGSR Forms Cabinet <http://www.gradstudies.ualberta.ca/forms/> ) to FGSR with supporting documentation. See Section 8.13 of the Graduate Program Manual. The request must be made prior to the submission of the Thesis Approval/ Program Completion form to FGSR. If the thesis is submitted through D-space and the request to restrict access has been approved, then we will hold the thesis (in D-space) and release it through D-space at the end of the embargo period.

#### **7.5 The PhD Candidacy Exam**

Before nominating the candidacy examining committee, ensure that eligibility criteria, conflict of interest, and teleconferencing guidelines have been met.

##### **Minimum five faculty member examiners:**

- The supervisory committee and normally the addition of two other faculty members
- At least one must be from outside the department (see “Internal/External Examiners”)

- Must have a minimum of two arm's length members who come new to the examination
- Must be chaired by a faculty member who is not the supervisor (or co-supervisor) but is a member of the student's home department. If the chair is not a member of the examining committee, the chair does not vote
- All members must attend the examination
- Roles of members (except the chair) can be in any combination. Examples: co-supervisor; a co-supervisor from outside the department; supervisor from outside the department; arm's length member from inside or outside the department; etc.

It is the responsibility of the department to nominate the additional members of the candidacy examining committee by completing the Notice and Approval of PhD Candidacy Examining Committee form and submitting it to the FGSR for approval. The form is available on the FGSR website at [www.gradstudies.ualberta.ca](http://www.gradstudies.ualberta.ca) (Exams & Convocation). This notice must be received by the FGSR at least three weeks in advance of the examination.

Supervisors are responsible for making arrangements for the examination, but in the absence of the supervisor, the department graduate coordinator or designate shall be responsible for these arrangements.

The candidacy examination must be passed no less than six months prior to taking the final oral examination, and is normally held within two years of the commencement of the program. At the time of candidacy, most - if not all - of the course work is completed and the thesis is started or well defined. Students must demonstrate to the satisfaction of the examining committee that they possess:

- 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.

During the candidacy examination only minor attention should be given to the data collection. The examination should determine whether the student is adequately prepared to continue as a PhD student.

The examination shall be chaired by a faculty member who is not the supervisor but is a member of the student's home department. The chair is responsible for moderating the discussion and directing questions and may participate in the questioning. If the chair is not a member of the committee, the chair does not vote. It is the chair's responsibility to ensure that departmental and FGSR regulations relating to the candidacy and examinations are followed.

Normally, if all but one member of the committee agrees on a decision, the decision shall be that of the majority. If two or more dissenting votes are recorded, the department will refer the matter to the Vice-Dean, FGSR, who will determine an appropriate course of action.

One of the following outcomes of the candidacy is appropriate:

- Pass
- Conditional pass
- Fail

**Pass:** If the student passes the candidacy examination, the department shall 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 shall provide in writing to the Vice-Dean, FGSR and the student:

- the reasons for this recommendation
- details of the conditions
- timeframe for the student to meet the conditions
- the approval mechanism for meeting the conditions, ie, approval of the committee chair or supervisor, or approval of the entire committee, or select members of the committee
- the supervision and assistance the student can be expected to receive from committee members

Once the examining committee has agreed that the conditions have been met, the department shall complete the Report of Completion of Candidacy Examination form and submit it to the FGSR.

**Fail:** If the candidacy examining committee agrees that the student has failed, the committee chair shall provide the reasons for this recommendation and the department's recommendation for the student's program in writing to the Vice-Dean, FGSR and to the student. For failed candidacy examinations, the Vice-Dean, FGSR, normally arranges to meet with the student and with department representatives before acting upon any department recommendation. A decision of the FGSR which affects a student's academic standing (ie, required to withdraw or transfer to an MSc program) is appealable.

The following options are to be considered by the examining committee when the outcome of a student's candidacy exam is "fail:"

**Repeat the Candidacy:** If the student's 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 PhD level, the examining committee should consider the possibility of recommending that the student be given an opportunity to repeat the candidacy exam.

If the recommendation of a repeat candidacy is formulated by the examining committee and approved by the FGSR, the student is to be notified in writing of his/her exam deficiencies by the chair of the examining committee. The second candidacy exam is to be scheduled no later than three to 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 next two options.

If the student's candidacy exam performance was inadequate and the student's performance and work completed to date indicates that the student has the potential to complete an MSc program, the examining committee should consider the possibility of recommending a change of category to an MSc program or postgraduate diploma program.

## **7.6 Degree of PhD in Medical Physics**

New Medical Physics PhD graduate students begin their studies in September. In their first year, new PhD students take all 11 didactic courses and 2 laboratory courses (if not already taken in their MSc) required for MSc plus 2 elective courses. Completion of BME 320 or 321 must also be taken at any time during the program. For a list of Medical Physics courses, visit [http://www.mp.med.ualberta.ca/graduate\\_prog/courses.htm?submenuheader=1](http://www.mp.med.ualberta.ca/graduate_prog/courses.htm?submenuheader=1) .

All students in degree programs (including time spent as a qualifying graduate student) must maintain a minimum cumulative grade point average of 2.7 throughout the duration of the program.

In addition to the courses required, each PhD student must pass an oral candidacy examination and complete a PhD thesis focusing on the MP, DP or RP area.

## **7.7 PhD Final Exam Committee Composition**

Before nominating the final PhD examining committee, ensure that eligibility criteria, conflict of interest, and teleconferencing guidelines have been met.

Minimum five faculty member examiners:

- The supervisory committee and (normally) the addition of at least two other faculty members
- At least one University of Alberta member must be from outside the department (see “Internal/External Examiners”).
- One member must be an external examiner/reader from outside the University
- In addition to the external, the committee must have a minimum of one additional arm's length member who comes new to the examination (but may have served on the candidacy examining committee). The FGSR encourages departments to nominate for this function a University staff member who comes to the finished thesis having read none of its earlier drafts. In this way the student benefits from an outside perspective without any of the possible biases of the supervisor and supervisory committee members.
- Must be chaired by a faculty member who is not the supervisor (or co-supervisor) but is a member of the student's home department. If this chair is not a member of the examining committee (FGSR encourages this arrangement), the chair does not vote.
- Must have a minimum of five members in attendance at the examination, which includes members participating through teleconferencing (see “Attendance at Examinations”). If an external reader is used, there still needs to be five members in attendance at the examination.
- Roles of members (except the chair) can be in almost any combination. Examples: co-supervisors; a co-supervisor from outside the department; supervisor from outside the department; arm's length member from inside or outside the department, etc.

The department will recommend names of all members of the final oral examining committee and forward them to the FGSR for approval on a Notice and Approval of PhD Final Oral Examining Committee form. The form is available at [www.gradstudies.ualberta.ca](http://www.gradstudies.ualberta.ca) (Exams & Convocation). This form must be submitted to the FGSR at least three weeks before the date of the final oral examination.

The department recommends revisions to the final examining committee by completing a Notice and Approval of PhD Final Oral Examining Committee form and submitting it to the FGSR.

### **7.8 External Examiner for PhD Final Exam**

A *Request to Invite External Reader or Examiner for the Final PhD Oral Examination* form is prepared by the department normally at least two months in advance of the examination date. The submission must include a brief CV of the external examiner and a short statement regarding the external's qualifications.

The external shall be a recognized authority in the special field of research of the candidate's thesis, and will be an experienced supervisor of PhD students. The proposed external examiner must be in a position to review the thesis objectively and to provide a critical analysis of the work and the presentation. It is therefore essential that the external examiner not have a current or previous association with the student, the supervisor, or the department that would hinder this type of objective analysis. For example, a proposed examiner who has recently been associated with the student as a research collaborator or co-author would not be eligible. Also, a proposed external examiner must not have had recent association with the PhD candidate's supervisor (as a former student, supervisor, or close collaborator, for instance). Supervisors who are in doubt about the eligibility of a potential external examiner should call the Vice-Dean, FGSR to review the case before approaching the external.

Under normal circumstances the same person will not be used as an external examiner at the University of Alberta if that examiner has served in the same capacity at this University within the preceding two years. The FGSR interprets this to mean the same external examiner cannot be used in the same department within two years; this does not preclude an examiner serving in another department (2004/11/01).

Once the external has been approved by the FGSR, the Vice-Dean, FGSR, will officially invite the external, with a copy of the letter of invitation to the department.

The external shall receive the thesis at least four weeks before the final oral examination.

The external should not be contacting the supervisor directly regarding the thesis or making arrangements related to the examination.

If the department and supervisor have the resources to bring an external to the campus for the examination, the FGSR encourages them to do so. In these cases, departments should indicate on the Request to Invite External Reader or Examiner for the Final PhD Oral Examination form that the external will be in attendance. Once the external examiner is approved by the Vice-Dean, FGSR, a letter of invitation will be mailed to the external asking that the thesis be temporarily placed in one of the following categories:

- the thesis is acceptable with minor or no revisions
- the external wishes to reserve judgment until after the examination; or
- the thesis is unacceptable without major revisions. If the thesis is judged by the external to fall into the last category, the external is asked to contact the Vice-Dean, FGSR immediately, since the final examination may have to be postponed.

In the letter of invitation sent to the attending external examiner by the FGSR, the external is requested to prepare and send to the graduate coordinator, at least one week in advance of the examination, a brief written commentary (approximately two to three pages) on the structure, methodology, quality, significance and findings of the thesis for the reference of both the candidate and supervisor. The commentary should not be given to the student prior to the examination.

The external examiner will also be asked to make travel arrangements in consultation with the department. FGSR has limited funding available for external examiners if graduate coordinators provide a compelling rationale why it would be particularly important to have an external examiner in attendance. Departments should complete and submit a Request for Funds for External Examiner Travel form. The Walter Mackenzie Visiting Speaker Fund through the Faculty of Medicine & Dentistry may be another option for obtaining external examiner funding. Further information is available at <http://www.med.ualberta.ca/research/fundingopportunities/visitingspeaker>

### **7.9 PhD Final Oral Exam**

Students should review the steps in preparing and submitting their thesis by visiting <http://www.gradstudies.ualberta.ca/degreesuperv/thesis/prepare.htm> prior to writing their thesis.

The thesis must be reviewed by each member of the supervisory committee prior to forwarding it to the external examiner. The supervisor and supervisory committee must indicate that the thesis is of adequate substance and quality to warrant examination by signing the “*Preliminary Acceptance of Thesis*” signature sheet. **The external examiner and other committee members must receive the thesis at least four weeks before the examination date.**

The final oral examination shall be chaired by a faculty member who is not the supervisor but is a member of the student's home department. The chair is responsible for moderating the discussion and directing questions and may participate in the questioning. If the chair is not a member of the committee, the chair does not vote or sign the thesis. It is the chair's responsibility to ensure that departmental and FGSR regulations relating to the final oral examination are followed.

Faculty members of the student's major department as well as members of FGSR Council (or their alternates) have the right to attend PhD examinations but should notify the chair of the examining committee. Other persons may attend the defense only with special permission of the Dean, FGSR, or the chair of the examining committee. Except for the Dean, FGSR, (or Vice-Dean or Associate Dean or pro dean) who may participate fully in the examination, persons who are not members of the examining committee: (a) may participate in the questioning only by permission of the chair of the committee; (b) are not permitted to participate in the discussion of the student's performance and must withdraw before such discussion commences (see “Attendance at Examinations” and “Attendance of Pro Dean at Examinations”).

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. Normally, if all but one member of the committee agrees on a decision, the decision shall be that of the majority, except when the one dissenting vote is that of the external examiner. If this happens, it must be reported to the Vice-Dean, FGSR, who will



determine an appropriate course of action. If two or more dissenting votes are recorded, the department will refer the matter to the Vice-Dean, FGSR, who will determine an appropriate course of action.

One of the following outcomes of the final oral examination is appropriate:

- Pass
- Pass subject to revisions
- Adjourned
- Fail

There is no provision for a final oral examination to be “passed subject to major revisions”.

**Pass:** If the student passes the examination, the department shall complete a Thesis Approval/Program Completion form and submit it to the FGSR. The form is available on the FGSR website at [www.gradstudies.ualberta.ca](http://www.gradstudies.ualberta.ca) (Exams & Convocation).

**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. The department shall complete a Thesis Approval/Program Completion form and submit it to the FGSR indicating “pass subject to revisions”. It is expected that the student will make the changes in time to submit the thesis to the FGSR on or before the deadline for the next convocation. These changes should be checked and approved by the committee chair or supervisor, who does not sign until the required changes are satisfactorily completed. Other committee members may also wish to withhold their signature until they can verify that their required revisions have been made to their satisfaction.

**Adjourned:** The final oral examination should be adjourned in the following situations:

- The revisions to the thesis are sufficiently substantial (if further research or experimentation or major reworking of sections are required, or if the committee is not satisfied with the general presentation of the thesis) that it will require a reconvening of the examining committee. The committee should not propose that the candidate has passed; rather the committee shall adjourn the examination.
- The committee is dissatisfied with the candidate’s oral presentation and defense of the thesis, even if the thesis itself is acceptable with or without minor revisions.
- Compelling, extraordinary circumstances such as a sudden medical emergency during the examination.

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 defense is unsatisfactory, it may be necessary to arrange some discussion periods with the candidate prior to reconvening the examination.
- Decide upon a date to reconvene. If the date of the reconvened oral 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. The final date set for reconvening shall be no later than six months from the date of the examination. A final decision of the examining committee must be made 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 (eg, 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 Vice-Dean, FGSR in writing of the adjournment and the conditions (in the points above).
- When the date is set for the adjourned final oral examination, the department will notify the FGSR. Normally the Dean, Vice-Dean, Associate Dean or Pro Dean attends the examination.

**Fail:** If the final examination committee agrees that the student has failed, the committee chair shall provide the reasons for this recommendation and the department's decision for the student's program in writing to the Vice-Dean, FGSR and to the student. For failed examinations, the Vice-Dean, FGSR, will arrange to meet with the candidate and with department representatives before acting upon any department recommendation. A decision of the FGSR which affects the student's academic standing (ie, required to withdraw or transfer to an MSc program) is appealable.

Many departments adhere to the following guidelines in having members of the examining committee sign the thesis signature page.

**Pass:** Thesis is approved as is. Examining committee members sign the signature page immediately. (If one of the examiners fails the student but the student passes, that examiner does not have to sign the thesis.)

The following guidelines may be followed for external readers, under the assumption that the external reader has indicated general acceptance of the thesis:

- When the external does not attend the final oral examination, and the student has passed the final oral examination (with the assent of the external), the external examiner's name and institution will be typed on the signature page, and the chair of the examining committee will initial the external's signature line. All other examining committee members will sign the signature page.
- When the external examiner attends the final oral examination, the external shall sign the thesis along with the other committee members.

**Pass subject to revisions:** Members who wish to do so sign immediately. The committee chair or supervisor withholds the signature until the thesis is amended satisfactorily and all other

committee members have signed. If problems arise in the amendment process, the chair or supervisor may wish to solicit opinions from the other committee members.

**Adjourned:** No member of the committee signs the signature page.

**Fail:** No member of the committee signs the signature page.

### ***7.10 Submission of PhD Thesis to FGSR***

Following completion of the final oral examination at which the thesis is passed or passed subject to revisions, the candidate shall make the appropriate revisions where necessary and submit the approved thesis to the FGSR within six months of the date of the final oral examination.

If the thesis is not submitted to the FGSR within the six-month time limit, the candidate will be considered to have withdrawn from the program. After this time, the candidate must apply and be re-admitted to the FGSR and register again before the thesis can be accepted.

If the final oral examination is adjourned, the six-month time limit will take effect from the date of completion of the examination where the thesis was passed with or without revisions.

In order to convocate, all PhD students must submit their thesis to the FGSR for approval before the deadline dates set out in the Academic Schedule of the Calendar. Students must also ensure that they are registered in Thesis in their last registration prior to convocation (see "Thesis Requirements").

Students wanting to restrict access to their theses for up to one year must complete and submit the Request to Restrict Access to a Thesis form (found in the FGSR Forms Cabinet <http://www.gradstudies.ualberta.ca/forms/>) to FGSR with supporting documentation. See Section 8.13 of the Graduate Program Manual. The request must be made prior to the submission of the Thesis Approval/ Program Completion form to FGSR. If the thesis is submitted through D-space and the request to restrict access has been approved, then we will hold the thesis (in D-space) and release it through D-space at the end of the embargo period.