

The University of British Columbia

Department of Physics & Astronomy

**Graduate Program
Policies and Procedures**

Sept 2011

Table of Contents

1.	Introduction.....	4
2.	Programs	4
3.	Admissions.....	4
3.1.	Eligibility	4
3.2.	Application procedure	5
3.3.	Review procedures	5
3.3.1.	Basis of assessment	5
3.3.2.	Admission criterion	6
3.3.3.	Late applications	6
3.3.4.	Start dates	6
3.3.5.	Deferment of admission	6
3.3.6.	Direct transfer to the Ph.D. program	6
4.	The M.Sc. and M.A.Sc. Programs.....	6
4.1.	The Supervisor.....	6
4.2.	Coursework.....	7
4.3.	Thesis	7
4.4.	Presentation.....	8
4.5.	The MSc (Medical Physics) degree	8
5.	Ph.D. Program.....	8
5.1.	The supervisor	8
5.2.	The Supervisory Committee.....	8
5.2.1.	Membership	8
5.2.2.	Membership	9
5.2.3.	Committee meetings	9
5.3.	Coursework.....	9
5.4.	Thesis Proposal.....	10
5.5.	Comprehensive Examination	10
5.6.	Admission to Candidacy	10
5.7.	Thesis and program completion.....	11
5.7.1.	External Examiner	11
5.7.2.	Departmental Thesis Examination	11
5.7.3.	Thesis Submission	12
5.7.4.	University Examiners	12
5.7.5.	Date of the Final Examination	12
5.7.6.	Thesis to the Examination Committee	12
5.7.7.	The Examination Program	12
5.7.8.	The Final Examination	12
6.	Financial Support	13
6.1.	Teaching Assistantships.....	13
6.2.	TA Workload.....	13
6.2.1.	Course Assignment	13

Graduate Program Policies and Procedures

6.2.2.	TA Duties	13
6.2.3.	Evaluation	13
6.2.4.	Application Procedure	13
6.3.	Research Assistantships.....	14
6.4.	Awards.....	14
6.4.1.	NSERC	14
6.4.2.	GSI Supplement awards	14
6.4.3.	UBC Four Year Fellowships	14
6.4.4.	UBC Affiliated Awards	14
6.4.5.	Ph.D. Tuition Awards	15
6.4.6.	Graduate Support Initiative (GSI)	15
6.4.7.	International Tuition Awards	15
6.4.8.	Departmental Prizes	15
6.4.9.	External Awards	15
7.	General.....	15
7.1.	Professional Development.....	15
7.2.	Graduate Student Travel.....	16

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1. Introduction

This document outlines policies and procedures applicable to the graduate program of the Department of Physics and Astronomy. Further details may be obtained from either the Graduate Chair or the Graduate Coordinator, or by consulting the Department's graduate web pages:

www.phas.ubc.ca/graduate

Many of our policies follow directly from the Policies and Procedures of the Faculty of Graduate Studies:

<http://www.grad.ubc.ca/faculty-staff/policies-procedures>

Also available online are References and Resources for Graduate Students and Instructions for the Preparation of Graduate Theses.

Contact information is available from the departmental web site:

www.phas.ubc.ca/people/contacts.phtml

2. Programs

Master of Science (M.Sc.) programs are offered with specialization in either Physics, Medical Physics, or Astronomy.

Master of Applied Science (M.A.Sc.) programs are offered in Physics.

Doctor of Philosophy (Ph.D.) programs are offered with specialization in either Physics or Astronomy.

3. Admissions

All students who wish to enter a graduate program must first apply. This includes students already in an M.Sc. or M.A.Sc. program at UBC who wish to continue in the Ph.D. program after completing their degree.

The exception is for current M.Sc. or M.A.Sc. students who wish to transfer directly to the Ph.D. program. The procedures for this "direct transfer" are outlined in Section 3.3.5.

3.1. Eligibility

The minimum requirements for admission to the M.Sc., M.A.Sc. and Ph.D. programs are:

- For the M.Sc. program, an honours or specialist (4 year) B.Sc. in Physics, Astronomy or Mathematics, or a B.A.Sc. in Engineering Physics, or an equivalent degree from an accredited university-level institution.
- For the M.A.Sc. program, a B.A.Sc. degree, or an equivalent degree from an accredited university-level institution.
- For the Ph.D. program an M.Sc. or M.A.Sc. in Physics, Astronomy or Mathematics, or equivalent degree from an accredited university-level institution.

For all applicants:

- An overall first-class average (normally "A-", 80%, or 3.5 GPA or better) in the last two years of full time study.

For international applicants:

Graduate Program Policies and Procedures

For students whose undergraduate degree is from a university in which English was not the primary language of instruction:

- A current TOEFL exam with the following minimum score: 550 (paper), 213 (computer), or 80 (internet).

3.2. Application procedure

The following are required:

- Application for Admission to Graduate Studies
- Official academic transcripts for all post-secondary institutions attended other than UBC.
- Report on Applicant for Admission to Graduate Studies – to be completed by three referees and forwarded directly to our admissions office.
- Official TOEFL test scores (if required)
- The application fee.

These are to be submitted to:

Graduate Admissions
Department of Physics and Astronomy
The University of British Columbia
Room 333 – 6224 Agricultural Road
Vancouver, BC, V6T 1Z1, Canada

Deadline:

January 15

3.3. Review procedures

When complete, applications are adjudicated by the Graduate Admissions Committee. This committee meets periodically, typically once per week, in order to recommend acceptance or rejection of applications.

3.3.1. Basis of assessment

Applications that meet the minimum requirements outlined in Section 3.1 are ranked on the basis of:

- Academic performance
- Letters of recommendation
- Other evidence of performance and research potential (scholarships, awards, papers, conference talks, etc)

Evidence of research potential is generally given higher weight for Ph.D. applications than for M.Sc.

For Ph.D. applications only, admission cannot be recommended unless an eligible UBC faculty member (a member of the Faculty of Graduate Studies) agrees to supervise and assume financial responsibility for the student.

International students will generally be accepted only into the M.Sc. or M.A.Sc. programs. Exceptions can be made by the Graduate Admissions Committee, on a case-by-case basis, depending on the qualifications of the applicant and their home university.

Graduate Program Policies and Procedures

3.3.2. Admission criterion

The Graduate Admissions Committee recommends acceptance of applications based on:

- The applicant's rank, according to the criteria of Section 3.3.1.
- The capacity of the department to accommodate new students in the relevant field(s).

The limited capacity of the department to absorb new students means that eligible applications will often be rejected. The Graduate Admissions Committee must continually seek a balance that will allow the best students to be admitted while not overly taxing the resources of the department. In doing this, the committee will recognize that not all offers of admission will be accepted.

3.3.3. Late applications

Late applications will be considered and assessed on the same basis as regular applications. However, there is no guarantee that departmental resources will allow the acceptance of additional students after the deadline. An exception is made in the case of winners of major (eg NSERC) scholarships.

3.3.4. Start dates

There is only one competition per year and this is for September 1 admission. Other start dates may be considered under exceptional circumstances but as per university policy can only be one of January 1 or May 1.

3.3.5. Deferment of admission

Requests for deferment of the admission date to another semester *in the same academic year* will be considered only if required (for example due to delays obtaining a visa). Deferment to another academic year is not possible and will require a new application.

3.3.6. Direct transfer to the Ph.D. program

A student in the M.Sc. or M.A.Sc. program may request to transfer directly to the Ph.D. program. This is normally done at the end of the first year of study and cannot be done after two years of study. This request will normally be approved provided that:

- The student has completed at least 12 credits of coursework at the 500-level and has obtained an average grade of at least 85% in these courses.
- The Supervisor and Graduate Advisor recommend the transfer.

4. The M.Sc. and M.A.Sc. Programs

4.1. The Supervisor

All M.Sc. and M.A.Sc. students require a supervisor. The supervisor is responsible for guiding the student through the program, supervising the research component, evaluating the thesis, and providing financial support as needed.

Incoming students are required to select a supervisor within four months of the start of their program. They do this by meeting with faculty members to discuss potential research opportunities. The Graduate Advisor will provide assistance as needed.

Supervisors must be members of the Faculty of Graduate Studies (eg. hold a full-time appointment as Assistant Professor, Associate Professor or Professor at UBC). It is possible for an Adjunct Professor, or qualified scientists holding a research or clinical appointment, to act as co-supervisor, providing that this

Graduate Program Policies and Procedures

is approved by the Dean of the Faculty of Graduate Studies. In such cases an “academic” co-supervisor is required who is a member of the Faculty of Graduate Studies.

If the supervisor is not a member of the Physics and Astronomy Department, a departmental co-supervisor is required.

4.2. Coursework

18 credits of course work are required. This may include at most 6 credits of undergraduate courses (300 or 400 level).

All students are required to take PHYS 500 (Quantum Mechanics I), or a more advanced quantum mechanics course, unless they have already taken an equivalent graduate quantum mechanics course (as judged by the instructor of PHYS 500) and obtained at least a B grade in it.

Physics students are also required to take at least one of the other core courses listed in Table 4.1, or equivalent. Many supervisors will require the student to take more than one of these courses.

Astronomy students are also required to take ASTR 520 (Astronomy Research Seminar).

All students must register for either PHYS 549 (MSc thesis), PHYS 599 (MAsc thesis) or ASTR 549 (MSc thesis) for every term while they are in the program.

The details of the course load are determined in consultation with the thesis advisor and graduate chair. Students may take courses from other departments, even from other faculties, in addition to Physics or Astronomy courses.

Table 4.1. Core physics courses

PHYS 500	Quantum Mechanics I
PHYS 501	Quantum Mechanics II
PHYS 504	Relativity and Electromagnetism
PHYS 508	Quantum Field Theory
PHYS 516	Statistical Mechanics
PHYS 526	Quantum Electrodynamics

M.Sc. and M.A.Sc. students must obtain a grade of at least 68% in 12 of the credits of coursework and at least 60% in the remaining 6 credits. Ph.D. students must obtain a grade of at least 68% in all courses. If a required course is failed it must be repeated and a grade of at least 74% obtained.

<http://www.grad.ubc.ca/faculty-staff/policies-procedures/low-scholarship>

Students who make a direct transfer to the Ph.D. program (Section 3.3.5) need only complete 12 credits during the M.Sc. or M.A.Sc. program. However these must all be 500-level courses. It is expected that these will be completed during the first year of study.

4.3. Thesis

A thesis is required for the M.Sc. and M.A.Sc. degree. It is awarded 12 credits, bringing the program total to 30.

Graduate Program Policies and Procedures

The thesis must be an original document produced by the student describing his or her research work. It is graded by the Supervisor and a Second Reader. The Second Reader, chosen by the Supervisor, must not have been directly involved in the supervision of the student.

When the thesis is completed, approved by the Supervisor, and graded, a copy is submitted by the student to the Faculty of Graduate Studies and to the departmental Graduate Coordinator.

4.4. Presentation

Each student must give a public presentation of his or her research work. This can be done at a research seminar in the department, or as an oral presentation at a conference, workshop or similar meeting.

4.5. The MSc (Medical Physics) degree

The department offers a MSc degree in Medical Physics, accredited by the Commission on Accreditation of Medical Physics Education Programs (CAMPEP). The details of this program are outlined at

<http://www.physics.ubc.ca/graduate/MedicalPhysics.php>

Accreditation requires that this formal program be followed explicitly.

5. Ph.D. Program

5.1. The supervisor

All Ph.D. students must choose a supervisor at the start of their program. The supervisor is responsible for guiding the student through the program, supervising the research, and providing financial support as needed.

The supervisor must be a full-time member of the Faculty of Graduate Studies. Clinical assistant professors, associate professors and professors actively engaged in research programs at UBC and experienced with graduate education may apply to their Head, Director or Dean who, in turn, may recommend to the Dean of the Faculty of Graduate Studies that they be approved to act as sole supervisors.

If an approved Adjunct Professor acts as the co-supervisor (research), a full member of the Faculty of Graduate Studies is required as co-supervisor (academic) who chairs the committee

5.2. The Supervisory Committee

The Supervisory Committee should be formed as early as possible during the first year of the Ph.D. program. Its role is to help with every stage of the student's program, from selection of coursework to formulation of the thesis research proposal by establishing the methodology and discussing the results, to presentation and publication of the dissertation.

5.2.1. Membership

The student, in consultation with the Supervisor, selects the members of the Supervisory Committee. UBC requires that the committee contain at least three members, normally at the rank of Assistant Professor or above, including the Supervisor who chairs the committee. In Physics and Astronomy, the committee normally has four members, as follows

- The Supervisor (Chair of the Committee)
- Two faculty members in closely related field(s), usually one theorist, one experimentalist

Graduate Program Policies and Procedures

- A faculty member in a different field but with relevant expertise
- A fifth person may serve on the Committee, if the research is interdisciplinary and might build on 2 areas of expertise

The Supervisory Committee membership may include senior instructors, professors emeriti, honorary faculty, adjunct faculty, off campus professionals as well as faculty members from other universities. A request for approval for these members is submitted to the Graduate Chair and must include a copy of the individual's curriculum vitae.

The at least 50% of the committee must be members of the UBC Faculty of Graduate Studies.

5.2.2. Membership

The membership of the supervisory committee must be approved by the Supervisory and the Graduate Program Chair. The student is responsible for completing an "Approval of PhD Committee Membership" form and obtaining the required signatures.

<http://www.phas.ubc.ca/graduate/forms/PHAS-GR-002.pdf>

5.2.3. Committee meetings

The supervisory committee meets at least once a year to monitor the student's progress. Student registration may be blocked if no Committee meeting has occurred in 15 months.

It is the student's responsibility to contact all members of the Supervisory Committee, find a suitable date, and book a room and time for the meeting.

The meeting begins with the student giving a 20 - 25 minute presentation. This should include a list of courses taken, marks obtained, and total number of credits so far. The student then presents the Thesis Proposal, or describes progress to date. This is followed by questions from the Committee and discussion. The Supervisor will then ask the student to leave the room so that the Committee may have an in-camera discussion.

The Committee must assess whether the material and scope of the thesis are suitable for a Ph.D. at UBC, and whether progress is satisfactory. The Committee may recommend specific courses or activities either deemed necessary or just suggested.

The Supervisor is responsible for completing a Ph.D. Committee Progress Report and returning it to the Graduate Coordinator, with a copy to the student, soon after the meeting.

<http://www.phas.ubc.ca/graduate/forms/PHAS-GR-003.pdf>

5.3. Coursework

The Department requires that a minimum of 12 credits of 500-level coursework be completed during the Ph.D. program. The details of the course load are determined in consultation with the Supervisory Committee.

All students must register for the PhD thesis (either PHYS 649 or ASTR 649) for every term while they are in the program.

If the student has not already completed the equivalent of the required courses for the M.Sc. or M.A.Sc. program, he or she will be required to take these courses.

Students must obtain a grade of at least 68% in all courses. If a required course is failed it must be repeated and a grade of at least 74% obtained.

6. Thesis Proposal

It is the student's responsibility to produce a Thesis Proposal. The proposal outlines the proposed research, providing any necessary background, and should include a research plan and schedule. The thesis proposal is typically 8 to 12 pages in length.

The Thesis Proposal is presented to the Supervisory Committee at one of its meetings. In addition to providing constructive feedback, the Committee will either approve the proposal or require revisions or changes before it can be accepted. Approval of the Thesis Proposal is a formal requirement. The Supervisor must certify acceptance by the committee by checking the appropriate box on the "PhD Progress Report" form and signing the form.

6.1. Comprehensive Examination

The University, and the Department, requires that all Ph.D. students pass a comprehensive examination. There are two options available to the student:

- An oral examination
- A written examination

The oral examination will be conducted by the Supervisory Committee at a special meeting coordinated with the Comprehensive Examination Committee. The student is responsible for contacting the Chair of this committee to arrange the examination. During the examination, questions will be asked that are of a general nature (such as basic physics or astronomy questions). The student's Supervisor does not participate in the examination, but is replaced by a member of the Comprehensive Examination Committee.

In place of the oral exam, the student may choose to write a written exam. This exam will be administered once per year and is open to all Ph.D. students. It is designed to test general knowledge of physics, primarily at the senior undergraduate level.

Comprehensive Examination Committee is responsible for setting the questions for the written and oral exams, and maintaining fairness and uniformity.

M.Sc. or M.A.Sc. students planning to continue for a Ph.D. may elect to take the written comprehensive exam while still in the Masters program.

A student who fails the comprehensive examination may take the exam a second time (either oral or written). There is no limit to the number of times that an examination may be repeated.

Students are encouraged to take the comprehensive examination as early as possible. It is a prerequisite to admission to candidacy (Section 5.6) and so should be passed within two years of the start of the Ph.D. program, and in no case later than three years.

6.2. Admission to Candidacy

Admission to candidacy is granted when the following conditions have been met:

- All required coursework has been successfully completed.
- The comprehensive examination has been passed.
- The supervisory committee has certified that the thesis proposal has been approved.

The Supervisor then completes a "Recommendation for Advancement to Candidacy" form and submits it to the Graduate Coordinator.

http://www.grad.ubc.ca/sites/default/files/forms/advancement_to_candidacy.pdf

Graduate Program Policies and Procedures

Students are expected to complete the requirements for admission to candidacy within two years of the start of the Ph.D. program, and in no case later than three years. Students who do not advance to candidacy within three years are required to withdraw from the program. Under exceptional circumstances, a request for a 1-year extension may be considered by the Dean of Graduate Studies.

6.3. Thesis and program completion

6.3.1. External Examiner

Three months before the final Oral Examination, the Faculty of Graduate Studies requires the nomination of an external examiner, to be chosen from two or preferably three submitted names. The External Examiner should be capable of judging the acceptability of the thesis at a University comparable to UBC, and should be either an Associate or Full Professor if at a University, or of equivalent rank. The Supervisor, the candidate, and the Department Head must not make personal contact with the External Examiner.

<http://www.grad.ubc.ca/current-students/final-doctoral-exam/selection-external-examiner>

Nominations are made by completing a “Nomination of External Examiner” form.

<http://www.grad.ubc.ca/forms/external-examiner-form>

6.3.2. Departmental Thesis Examination

Every Ph.D. candidate must defend his or her thesis before the department. The Departmental Examination is a public event open to all interested faculty and students and will normally be held in the Hennings building.

Committee members should receive the thesis at least two weeks before the Departmental Examination.

The Graduate Coordinator (gradsec@physics.ubc.ca) needs notice of the Departmental Examination at least three days before the event so that it can be properly advertised.

The form of the examination is similar to that of the Final Examination. The candidate first presents a synopsis of the thesis. The presentation should be about 20 minutes in length, and must not exceed 30 minutes. The candidate may speak from notes, and may use a blackboard and projector, but should not read the synopsis. If the presentation is interrupted by questions from the audience, an extension of the time limit may be granted by the Supervisor.

After the presentation, each member of the Committee will direct questions to the candidate, with the Supervisor going last. After a round of questions, the Committee members may direct additional questions, if they wish. The Supervisor acts as the Chairperson of this examination and calls upon the members. After the Committee, members of the audience may ask questions of the candidate.

The candidate should demonstrate sufficient comprehension of the appropriate general academic preparation: undergraduate level preparation, plus a thorough comprehension of the relevant field of specialization.

Following the questions, the candidate and the general audience leave, and the Supervisor leads the discussion.

A quorum for the Departmental Oral is the Supervisor or his or her delegate if she or he is away or unable to attend, and two members of the Supervisory Committee.

There is no time limit for the Departmental Exam, but two to three hours is normal.

6.3.3. Thesis Submission

Following the Departmental Examination, the candidate makes all required changes and edits to the thesis, usually to the satisfaction of just the Supervisor. In a case where significant changes are warranted, the Supervisory Committee may decide that the new thesis version will need approval by one or more additional committee members, in addition to the Supervisor. The Supervisor then sends a memo to the Head, stating that the student has passed the Departmental Examination and the thesis is now ready to go to the External Examiner. Allow a minimum of six weeks before the final oral examination, and eight weeks if the External Examiner is outside North America. An extra week must be added if the thesis is to be mailed instead of couriered.

Upon receipt of this memo, the Graduate Chair (writing on behalf of the Head) will confirm to the Faculty of Graduate Studies that all requirements have been met and that the student is currently registered. This letter accompanies two bound (cerlox or coil) copies of the thesis, one for the External Examiner and the other for the Chair of the Final Examination, who will be appointed by the Faculty of Graduate Studies.

6.3.4. University Examiners

The Research Supervisor must nominate two willing University Examiners, one from within the Department and one from another department. They must both be of senior rank, either Full or Associate Professor, and at arms-length from the candidate.

<http://www.grad.ubc.ca/current-students/final-doctoral-exam/university-examiners>

The consent and availability of the University Examiners must be obtained by the Supervisor prior to submitting the “Approval of University Examiners” form.

<http://www.grad.ubc.ca/forms/university-examiner-form>

6.3.5. Date of the Final Examination

The Supervisor is responsible for arranging a mutually convenient time for all members of the Examining Committee (although often the candidate can be given this task and it can be done by e-mail), and for booking a room with the Doctoral Examinations Program Assistant at the Faculty of Graduate Studies.

6.3.6. Thesis to the Examination Committee

At least four weeks before the Final Oral Examination, the candidate is responsible for delivering to each member of the Supervisory Committee as well as the University Examiners a copy of the thesis in approved form.

6.3.7. The Examination Program

A typed version of the final Examination Program must be submitted to the Faculty of Graduate Studies at least four weeks before the Oral Examination. This is the candidate's responsibility, but it must be approved by the Supervisor.

6.3.8. The Final Examination

The Faculty of Graduate Studies appoints the Chairperson of the Final Oral Examination (normally someone from another UBC department), and the Chairperson will be given instructions on how to conduct the proceedings. They are also available on the FOGS website. Usually, the Supervisor will put the questions posed by the External Examiner to the candidate, if the External Examiner is not present at the examination.

7. Financial Support

The Department guarantees financial support to all accepted graduate students for a period of 2 years for M.Sc. or M.A.Sc. students and 3 years for Ph.D. students (up to 5 years total).

The current minimum level of support is listed on the departmental website at www.phas.ubc.ca/graduate/support.php. This funding comes from a number of sources, described in this section.

7.1. Teaching Assistantships

Graduate students form an essential component of the teaching environment in the Department of Physics and Astronomy. Teaching Assistantships can provide graduate students with valuable experience that will be useful in later careers.

7.2. TA Workload

TA duties are assigned in terms of Departmental TA units: one TA unit represents 6.4 hours per week of employment. A typical TA load is 1-2 units per term with a maximum of 4 units for two terms or possibly 5 units with the permission of the student's Supervisor. Typically, student contact time is 3 hours for a lab and 1-2 hours for a tutorial. Tutorial TAs are usually responsible for mid-term and final exam marking. All TAs will be assigned either invigilation duties or marking duties during the final exam period. TAs are also required during the summer session, May 1-June 15 or July 1-30. Graduate students need the permission of their Supervisor to act as a TA during the summer.

7.2.1. Course Assignment

Course assignment is done by the TA Administrator. Every effort is made to match graduate students with appropriate courses. Most incoming graduate students should expect to be assigned initially to one of the large first-year Physics or Astronomy courses.

7.2.2. TA Duties

The course supervisor should have an introductory meeting with TAs to discuss specific duties, laboratory and tutorial times, outline the basic structure of the course and provide any necessary teaching materials such as texts or laboratory manuals. Normally this meeting is held during the first or second day of term. TA duties include but are not limited to invigilation and marking, teaching, demonstrating lab experiments, giving tutorials. Students must maintain satisfactory progress in their graduate program and satisfactory performance of their TA duties.

7.2.3. Evaluation

All course supervisors are asked to provide an evaluation of the performance of their TAs during the term. Students also evaluate laboratory TAs and some tutorial TAs. Student evaluations are processed after the course is completed, and the forms and statistical analysis made available to the TAs.

7.2.4. Application Procedure

Students seeking positions as TAs should contact the TA Administrator by April 30. New incoming students need not apply as they will be considered automatically for TAs.

7.3. Research Assistantships

Research Assistantships are provided by the Supervisors to provide support for graduate students while they are pursuing research activities. Students without fellowships receive the balance of their financial aid via these Research Assistantships. For new students in their first four months of the M.Sc. or M.A.Sc. program, the Department will cover the cost of the Research Assistantship until the Supervisor is selected, up to a maximum of four months.

7.4. Awards

7.4.1. NSERC

Each year NSERC awards postgraduate and postdoctoral scholarships. The deadline for application is in the fall, typically near the end of September. All eligible students are encouraged to apply.

Applications are collected by the Graduate Coordinator for review by the departmental Graduate Awards Committee. The committee ranks the applications and then forwards them to the Faculty of Graduate Studies along with supporting documents.

The results are announced in the spring, typically near the end of March.

7.4.2. GSI Supplement awards

Each student who is successful in the competition for NSERC postgraduate scholarship awards will be awarded a top-up of \$6,000 for the entrance year to graduate school at UBC, and will receive a top-up of \$4,000 each year at UBC in which they continue to hold an NSERC scholarship. Any student who holds an FQRNT scholarship will receive a \$2,000 top-up each year at UBC in which they hold an FCAR scholarship. Students receiving an MSFHR award will receive a \$2,000 top-up each year at UBC in which they hold the award.

7.4.3. UBC Four Year Fellowships

The university offers a limited number of Four Year Fellowships (FYFs). All UBC Ph.D. students are eligible, regardless of citizenship. Our department is notified how many awards we can assign, and the selection of the recipients is made by the departmental Graduate Awards Committee. Recipients receive a stipend and full tuition award.

No application is necessary for the FYFs, as all eligible students will be automatically considered by the Committee.

Note: All FYF holders who are eligible to apply for NSERC scholarships must do so every year, or their FYF may be cancelled.

7.4.4. UBC Affiliated Awards

A number of other awards available through the university. These include the Pacific Century Graduate Scholarships, and many other specialized awards. Application is made in September, through the department, as for NSERC scholarships. Students who are applying for NSERC scholarships do not need to submit a separate application. They will be automatically considered for Affiliated Awards.

7.4.5. Ph.D. Tuition Awards

Ph.D. students who were registered in a graduate program prior to September 1, 2008, who do not otherwise have tuition paid by an external agency (most often a government scholarship) will receive a Ph.D. Tuition Award, equal to the tuition assessment, for the first 4 years registered in the PhD program.

These awards are being phased out and will be replaced by a new Ph.D. tuitions award system using funding from the Graduate Support Initiative (GSI).

7.4.6. Graduate Support Initiative (GSI)

The University provide funds to the faculties through a program called the Graduate Support Initiative. In turn, the Faculties decide how these funds will be allocated to the departments and/or to students. Presently, GSI funds are being used to provide Ph.D. Tuition Awards. These awards are provided to new Ph.D. students for the the first four years of their program, subject to satisfactory progress. No application is needed.

We anticipate that funds will be available to support M.Sc. Partial Tuition Awards, GSI Supplement Awards, and Graduate Entrance Scholarships, but this has not yet been decided by the Faculty of Science.

7.4.7. International Tuition Awards

International Partial Tuition Scholarships are available to international M.Sc. students, in order to bring the international student tuition fees close to those of domestic students.

<http://www.grad.ubc.ca/awards/index.asp?menu=007,001,000,000>

7.4.8. Departmental Prizes

Each year the Department awards cash prizes, typically in the range of \$2000 to \$3000, to the top three highest-ranked students in PHYS 500. This course was chosen as it is a require course for both the Physics and Astronomy graduate programs.

7.4.9. External Awards

The Faculty of Graduate Studies maintains a list of sources of financial support. Students should investigate all possible awards for which they are eligible.

www.grad.ubc.ca/awards/index.asp?menu=000,000,000,000

8. General

8.1. Professional Development

The University offers many opportunities for graduate students to improve their teaching and professional activities.

<http://www.grad.ubc.ca/current-students/gps-graduate-pathways-success>

Also, the UBC Science and Engineering Library holds workshops on research skills.

<http://elred.library.ubc.ca/libs/series/7>

Graduate Program Policies and Procedures

UBC offers 2 and 3 day workshops to help students develop and enhance their instructional or presentational skills. Successful completion of each workshop earns an entry (with no marks) on the student's UBC transcript.

<http://events.ctlt.ubc.ca/>

8.2. Graduate Student Travel

UBC encourages graduate students to attend conferences and symposia and provides funds to support travel provided that the student is presenting a paper or poster. Each student is entitled to one \$400 travel award, once per degree. (i.e. once while registered as an M.Sc. or M.A.Sc. student and once while registered as a PhD student). This is an entitlement – no competition is necessary for this award. Also, many supervisors will cover travel expenses for students to allow them to present their work at conferences.

<http://www.grad.ubc.ca/awards/graduate-student-travel-fund>