

# ASTRONOMY, PHD

Saint Mary's University is the major centre for astronomical and astrophysical research in Atlantic Canada. It offers degree programs leading to the M.Sc. (Astronomy) and to the Ph.D. (Astronomy).

The Ph.D. program is a four year program including dissertation research.

## Admission Requirements

The M.Sc. and Ph.D. in Astronomy programs follow the general admission requirements (<https://smu-ca-public.courseleaf.com/graduate/academic-regulations/admissions/>) and procedures of the Faculty of Graduate Studies and Research as outlined in the Graduate Studies Academic Calendar with the following additional requirements and procedures.

All students entering the Astronomy graduate program require a B.Sc. or equivalent, in Astronomy, Mathematics, or Physics. Students with a B.Sc. or equivalent intending to pursue a Ph.D. enter the Astronomy graduate program at the M.Sc. level. Students with an M.Sc. may enter the Astronomy graduate program at the Ph.D. level, and may be given course transfer credits for equivalent Saint Mary's University graduate level astronomy courses taken elsewhere.

Applications to the Astronomy graduate programs can be made at any time of the year. Highest priority for fall admission will be given to applications received by February 1<sup>st</sup> of the preceding winter. Applications may be obtained at <http://www.smu.ca/academics/apply-to-grad-studies.html>. Prospective students who are in doubt about their qualifications should contact the graduate coordinator: [astrogc@ap.smu.ca](mailto:astrogc@ap.smu.ca).

Students may apply for full-time or part-time status. Under special circumstances and subject to department approval, new or existing students may enrol in the program on a part-time basis. Admission and degree requirements for part-time students are the same as for full-time students, but part-time students are not guaranteed full financial support.

In addition, students applying for admission into the astronomy Ph.D. program are normally required to have an M.Sc., or equivalent in Astronomy, Physics, or related field. Students, who do not yet have an M.Sc. degree, are required to enter the astronomy M.Sc. program first and then reapply for admission to the Ph.D. program when they have completed their M.Sc. degree. Optionally, before starting the second year of the M.Sc. degree, a student may apply to enter the Ph.D. in Astronomy Program. Applications will be subject to approval by the Department and the Dean of the FGSR. If approved, the student does not take the M.Sc. thesis course, and no M.Sc. degree is conferred. On the start of the second year, the student would enter the first year of the Ph.D. program. Applicants to this program, whose first language is not English, must demonstrate their English language proficiency as outlined in Graduate Academic Regulation 1e (<https://smu-ca-public.courseleaf.com/graduate/academic-regulations/admissions/>) with the following additional requirement: a TOEFL (iBT) score of at least 100, with no individual band below 20; or an IELTS score of at least 7.0, with no band below 6.5.

## Financial Support

Full-time students admitted to the program may be eligible for funding administered by Saint Mary's University. Funding recommendations are made by the program. All successful applicants are automatically

considered for graduate funding. Students are encouraged to apply for external scholarships.

## Program Requirements

Students take a total of twenty-four (24) credit hours of courses. Students must take six core courses (18 credit hours) and two courses (6 credit hours) drawn from ASTR courses numbered 5000 and above (excluding Research Projects, Graduate Seminars, and thesis courses), or graduate level courses in astronomy or related disciplines, subject to University regulations on transfer credits for off-campus courses and approval of the student's supervisor.

All ASTR courses taken by students toward the M.Sc. degree at Saint Mary's (excluding Research Project, Graduate Seminar, and thesis courses) count towards Ph.D. course requirements. Students who have completed M.Sc. programs elsewhere may transfer courses taken at their former institution, subject to University regulations on transfer credits for off-campus courses and approval of the student's supervisor.

Under special circumstances, upon approval by the graduate coordinator and the student's supervisor, a non-core course may be substituted for a core course. Students wishing to take and receive credit for more than twenty-four (24) credit hours of graduate courses must obtain prior approval from the graduate coordinator and their supervisor.

Students also attend the Graduate Seminar courses (taken by M.Sc. students as Graduate Seminar I (ASTR 5900) and Graduate Seminar II (ASTR 6900)) every year they are enrolled in the program. The Graduate Seminar courses are normally led by the senior Ph.D. students.

For credit towards the degree, a student must attain a course grade of B- (2.67 GP) or better. A student's GPA over all courses satisfying degree requirements must be at least 3.00 (B) out of 4.3 to be eligible for graduation.

Students are required to pass a comprehensive exam and a dissertation proposal defense exam. Students are given a maximum of two attempts to pass each examination. Students who complete the M.Sc. program at Saint Mary's University before commencing the Ph.D. program are encouraged to take the comprehensive exam and the dissertation proposal defense exam before commencing the Ph.D. during the second year of their M.Sc. program. Both exams must be completed by the end of the second year of the Ph.D. program.

The purpose of the defense of the dissertation proposal is to ensure the student is ready to commence the dissertation phase of their Ph.D. program. The student should demonstrate a clear understanding of a credible proposal for original research and have sufficient knowledge of the background material to begin the research. The student must submit a written dissertation proposal (normally not to exceed ten pages, single sided, double spaced) and present it to their Exam Committee at least three weeks prior to the defense of dissertation proposal exam. Committee approval of the proposal is required before a student is permitted to pursue their dissertation research.

The purpose of the comprehensive exam is to determine if the student has an acceptable level of understanding of general astronomy, physics, and astrophysics at the undergraduate astronomy major level and a graduate level understanding of fields related to the proposed thesis research.

Once a student enters the dissertation phase of their research, they are required to meet with their Supervisory Committee at least once a year to have their progress assessed.

**Students enrol in Doctoral Dissertation (ASTR 8990) the first year after approval of their dissertation proposal and in Prog Registration/Continuation (FGSR 9000) every year thereafter.**

When the dissertation is complete, students defend their dissertation before their Dissertation Defence Committee, near the end of the student's program of study.

## **Voluntary Withdrawal**

A student who wishes to withdraw from the Ph.D. program, who has not completed an M.Sc. program in Astronomy, may apply to the Department to use their progress to date towards the M.Sc. degree. If there are insufficient credits for the M.Sc. degree, the student may elect to transfer to the M.Sc. program to complete those requirements, provided notification is provided in writing to the graduate coordinator and approval is granted by the Department and the FGSR. Financial support for students who transfer from the Ph.D. program to the M.Sc. program is not guaranteed.