Saint Mary's University

MSc in Applied Science Program Guide

Updated: July 14 2023

Required Courses

To graduate with an MSc in APSC, students must complete the following requirements, achieving:

- minimum B average (GPA ≥3.0) in APSC 6600 and electives
- passing grades in APSC 6603 and 6604

APSC 6600: Graduate Seminar	This is a full-year course. Students must complete both the Fall and Winter semester components.
Your choice: 2 elective courses **OR** Co-op option	Electives must be graduate-level courses. These can either be normal courses (taken from SMU or elsewhere), or directed studies courses. Students should discuss these options with their supervisor. For directed studies courses, the student and instructor (usually the supervisor) must complete and submit an "Application for Directed Study" to the Program Coordinator **at least one month before** the semester when the course will begin. *Students that are considering a transfer to the PhD program are advised to make this decision before getting too deeply into their MSc studies. Very few elective courses will transfer between the two programs.* Rather than take 2 elective courses, students may choose to complete a Co-op work term (minimum 4 months), working in a job related to their field of study. Students should discuss this option with their Supervisor, and then apply via the Co-op Office website.
ASPC 6603: Thesis I	This is a Pass/Fail component. Students must arrange a Supervisory Committee meeting within 8 to 12 months of starting the program to present their Research Progress Report. The Research Progress Report consists of a **10-15 page written report** submitted to the Supervisory Committee 1-2 weeks before the meeting, **and a 10-20 minute oral presentation** of that report during the meeting. If the Supervisory Committee agrees that acceptable progress has been made, a pass is awarded for

	APSC 6603. More details regarding the Research Progress Report are given below.
APSC 6604: Thesis II	Students receive a Pass for successfully defending their thesis and submitting their finalized thesis document, approved by their Examination Committee, to FGSR.

Registration Procedures:

Every term, register for FGSR 9000, otherwise you will be made inactive in the program.

Registration for APSC 6603 and 6604 (Thesis I and II) is closed, requiring special permission to register. The procedure for taking these courses is as follows:

1. Consult with your supervisory committee to plan when to take the courses.
2. Perform your course requirements.
3. Once completed, submit the appropriate forms.
4. Once the forms are received, the Program Coordinator will provide an override for the course and notify you by e-mail.
5. Register for the course and notify the Program Coordinator you have done so.
6. The Program Coordinator will enter your grade.

Elective Courses:

For electives, students may take courses from Saint Mary's, or other institutions.

One Saint Mary's elective with broad applicability to all Applied Science students is APSC 6608: Applied Statistics (will be offered Winter 2023). This is a pan-discipline course in which you will learn to analyze scientific data at an advanced level. Topics include multivariate analysis, nonparametric methods, and model selection. The course has a project component, where you get to apply the statistical tools learned to a real dataset, ideally from your own thesis research. For other options, consult the Academic Calendar and your supervisor.

To take a course from a different institution, a student must first get approval using the "Letter of Permission Request Form", which needs to be submitted to FGSR. If the request is approved, usually the student has to pay the other institution to register for the course, but can receive a reimbursement from SMU after the course is completed. Reimbursement for a course taken elsewhere is limited to the per course tuition fee at SMU (i.e., you may not receive full reimbursement). To receive reimbursement, students need to: (i) request that an official transcript be sent from the other institution to the SMU Service Centre, and (ii) present a receipt for the tuition paid at the other institution to the SMU Service Centre.

Research Progress Report for APSC 6603:

Students must arrange a Supervisory Committee meeting 8 to 12 months after starting the MSc in Applied Science program in order to present their Research Progress Report.

The Research Progress Report has two parts:

1. A written report, 10-15 pages long, that is sent to the Supervisory Committee 1 to 2 weeks before the committee meeting, and
2. An oral presentation of that report, 10-20 minutes long, given during the meeting.

The Research Progress Report should include:

- Background information
- The overall goal of the student's research, followed by specific objectives and hypotheses
- Proposed experiments and methods
- Progress to date
- Timeline for completion

Other Important Courses

FGSR 9000: Program Continuation	To remain in the MSc program, students must be registered for at least one Saint Mary's course during each semester (Fall, Winter, and Summer). To ensure this, students are advised to **register for FGSR 9000 every semester**. Registering for this course tells the University "I'm working on my Master's degree", regardless of whether you are taking courses or conducting research.

Example Schedules

Typical schedules for students starting the MSc program in the Fall, Summer, and Winter semesters are shown below. These are only examples: other arrangements are possible.

September start:

Year 1

Fall	ASPC 6600 Elective FGSR 9000
Winter	APSC 6600 Elective FGSR 9000
Summer	APSC 6603 FGSR 9000

Year 2

Fall	FGSR 9000
Winter	FGSR 9000
Summer	APSC 6604 FGSR 9000

May start:

Year 1

Summer	Elective FGSR 9000
Fall	APSC 6600 Elective FGSR 9000
Winter	APSC 6600 APSC 6603 FGSR 9000

Year 2

Summer	FGSR 9000
Fall	FGSR 9000
Winter	APSC 6604 FGSR 9000

January start:

Year 1

Winter	Elective Elective FGSR 9000
Summer	FGSR 9000
Fall	APSC 6600 APSC 6603 FGSR 9000

Year 2

Winter	APSC 6600 FGSR 9000
Summer	FGSR 9000
Fall	APSC 6604 FGSR 9000

Navigating the Program Step-by-Step

Forms and other information are posted on the program's webpage:
https://www.smu.ca/faculty-of-science/master-in-applied-science.html

1. Plan your Degree Timeline (asap)

Students should meet with their Supervisor to plan a basic timeline for their degree: when will you take the required APSC 6600 course? Will you choose the co-op option, or take

electives? If electives, which will you take and when? When will research be conducted? Etc.

2. Register for Courses (asap)

Registration for courses is done through SMU's online "Self Service Banner" system. APSC courses are listed under the "Applied Science" subject listing.

3. Establish a Supervisory Committee (within one month of starting program)

Every student in the MSc in Applied Science program must have a Supervisory Committee. The Supervisory Committee must consist of a minimum of three faculty members:

1. the research thesis Supervisor,
2. a faculty member who doesn't specialize in the student's area of research, and isn't from the same department as the Supervisor, and
3. another faculty member (may be an expert in the student's area of research, and may be from the same department as the Supervisor).

The core Supervisory Committee members may be external to the university, but must hold a PhD or equivalent.

The Supervisory Committee may consist of more than three members. While meetings become more difficult to schedule with larger committees, additional expertise is sometimes required depending on the nature of the research to be conducted.

The student should consult with their Supervisor to identify potential faculty members for their Supervisory Committee. Once willing faculty members have been found, the "Establishment of Supervisory Committee Form" should be completed. The completed form should be submitted to the Applied Science Program via the Dean of Science Office within one month of starting the program.

Students should meet with their Supervisory Committee at least once per year. Supervisory Committee meetings are often very helpful, and more frequent meetings are encouraged! The "Annual Assessment & Committee Meeting Form" should be completed for each meeting held.

4. Develop a Risk Management Strategy for your Research

When conducting research or any other work that is part of your MSc degree, safety must be your first priority. This includes ensuring your personal safety, the safety of those around you, and University property.

Constructing a Risk Management Strategy is an essential component of every MSc student's program. All students must complete and submit the "Graduate Research Hazards Identification Notification" form. Students must have their submitted form

approved by FGSR before engaging in any research activity. Expanded text on risk management is provided on page 8.

5. Present your Research Progress Report to your Supervisory Committee (within 8 to 12 months of starting program)

Students receive a pass/fail grade for APSC 6603 after presenting their Research Progress Report to their Supervisory Committee. Students should enroll in APSC 6603 for their third semester in the program. For example, if you start the program in September, you should enroll in APSC 6603 for the following Summer semester.

Near the end of your second semester in the program, you should consult with your Supervisor to choose possible dates for a Supervisory Committee meeting. When selecting possible dates, make sure to leave yourself enough time to complete the written portion of your Research Progress Report: you may need to write a second or third draft after review by your Supervisor, and the finalized document (10-15 pages—see page 3) should be sent to the members of your Supervisory Committee 1 to 2 weeks before the meeting.

During the Fall and Winter semesters in particular, availability of rooms on the SMU campus for meetings is quite limited (most rooms get booked for lectures). Be sure to remind your Supervisor to book a meeting room well in advance.

Before each Supervisory Committee meeting, students should complete Part I of the "Annual Assessment & Committee Meeting Form". The form should then be printed and brought to the committee meeting.

6. Apply to Graduate (two semesters before you plan to graduate)

In order to graduate, you must complete a "Graduation Application" and submit this to the Service Centre. You should enroll in APSC 6604 prior to submitting the application (see #7, below).

The Graduation Application needs to be submitted well before your prospective graduation date—almost two semesters in advance. Application deadlines for each of the convocations are listed below:

Convocation	Deadline for submitting Graduation Application
Spring	October 1st
Fall	June 1st
Winter	August 1st

7. Prepare for your Thesis Defense (several months before you plan to defend)

Enroll in APSC 6604:

- Students should enroll in APSC 6604 for the semester in which they plan to defend their thesis.

Check thesis formatting:

- Students should ensure that their thesis conforms to Saint Mary's formatting guidelines for Master's theses.

Ask your Supervisor to select and confirm an External Examiner:

- Students should encourage their Supervisor to arrange an External Examiner. The External Examiner for a Master's thesis can be from SMU or another institution, but cannot have had any previous involvement in the student's research.

Arrange a date for your defense:

- When proposing a date for your defense remember that the ready-to-defend version of your thesis needs to be complete well in advance of this date: the External Examiner needs to receive your thesis a minimum of 1 month before the defense, and the members of your Supervisory Committee will want to read/assess your thesis before it is sent to the External Examiner.

8. Complete the External Examiner Nomination Form (6 to 7 weeks before your defense)

Along with a PDF version of your ready-to-defend thesis, the "Approval of Thesis for Defense & External Examiner Nomination Form" needs to be submitted to FGSR a **minimum of 1 month before your defense**.

You should present this form to your Supervisory Committee members **well in advance of this one-month deadline**, as they will want to read/assess your thesis before signing the form.

9. Defend your Thesis

The student should print a copy of their thesis title page for signatures and bring it with them to the defense.

The thesis defense starts with a 25-30 minute oral presentation delivered by the student. The presentation is public: anyone may attend (fellow students, other faculty, friends, relatives). The presentation is followed by a question period lasting approximately 90 minutes, during which the members of the Examination Committee take turns asking the

student questions related to their research. The defense is presided over by an independent Chair, who introduces the student at the start of the defense, ensures that each Examiner gets equal time for questioning the student, etc. At the conclusion of the defense, the student will be asked to leave the room while the Examination Committee deliberates. The student is then invited back into the room by the Chair to receive the Examination Committee's assessment.

After the defense, students should read the FGSR procedures for "Submitting the Completed, Revised Thesis after the Defense".

Risk Management

When conducting research or any other work that is part of your degree, safety must be your first priority. This includes ensuring your personal safety, as well as the safety of those around you, and University property.

Constructing a Risk Management Strategy is an essential component of every student's program, and must be done before any research activity begins.

All new students must prepare a Risk Management Strategy in order to minimize the potential for harm. Preparing a Risk Management Strategy involves undertaking the following steps:

i. identifying potential hazards (potential sources of harm),
ii. determining the level of risk associated with each hazard (risk = likelihood of harm x severity of that harm)
iii. identifying ways to eliminate hazards, and/or of reducing the risk associated with those hazards that cannot be eliminated.

Identified hazards and proposed mitigation measures must be reported via the University's "Graduate Research Hazards Identification Notification" form. When complete, this form should be submitted to the Program Manager (keith.bain@smu.ca), and **students must receive formal notification from FGSR that their form has been approved prior to engaging in any research activities**.

Students who will deal with hazardous materials will also need to undertake Workplace Hazardous Materials Information System (WHMIS) training. More information about WHMIS training can be found on the Faculty of Science WHMIS page.

Money Matters

Stipends:

Full-time students normally receive an annual stipend for the first two years of their Master's degree made up of funding from the following sources:

- Research grants held by the Supervisor
- Funding provided to the Applied Science program from FGSR
- Teaching Assistant (TA) positions (or "TAships")

Typical stipends for MSc students range from $18,600 to $25,000 per year. These amounts include funding from all sources, including scholarships and TAships.

Annual stipends are paid in three installments: one per semester. Near the start of each semester, your stipend amount will be posted to your student account. Your tuition will be charged to that same account. After your tuition has been deducted, you can request that the balance remaining be paid to you via a "refund cheque". Refund cheque requests must be email to: Service.Centre@smu.ca. Note that payment for the TA portion of your stipend is administered differently, and paid biweekly following Financial Services payroll schedule.

Part-time students are not guaranteed a stipend and are not eligible for any of the Applied Science program funding provided by FGSR. Part-time students may receive financial support from their supervisor's research grants (to be negotiated between the student and supervisor) and may hold TA positions (to be arranged between the student/supervisor and their Departmental Chair).

TA Positions:

Teaching Assistant positions are administered by individual departments. The pay rate for graduate student TA positions in the Faculty of Science is typically $1250 per single semester course. MSc students typically take four TA positions per year: two in the Fall semester and two in the Winter (total TA funding of $5,000/year). The expected time commitment per course is usually 4 hours/week.

Work as a TA may include a variety of tasks: marking submitted materials; preparing quizzes, assignments, or solution sheets; assisting in the setup or conduct of laboratories or tutorials; assisting with demonstrations; leading discussions; etc.

Prior to the start of each semester, students should:

1. Visit your department to:
    - determine which courses you will serve as a TA for
    - complete the necessary payroll paperwork

2. Meet with the professors that you will be undertaking TA duties for to:
    - ensure that you understand what your duties will be
    - ensure that you understand what is expected of you (are you expected to attend lectures? to complete marking assignments within five days? etc.)
    - ensure that both you and the professor share a common understanding of the expected time commitment per week

Co-op Students:

Full-time students who choose the co-op option also normally receive the annual base stipend, and may continue to take on TA work if they desire and their co-op employment allows it. Salary collected during a student's work term counts toward the base stipend requirement of $13,600.

Scholarships:

Students who obtain scholarships often receive more than the minimum stipend. Students should check FGSR's scholarship webpage every month for a list of current scholarship opportunities.
Common scholarships for Applied Science students include:

- Canada Graduate Scholarships (CGS) – Master's program
  - $17,500 for one year (non-renewable)
  - application deadline is usually in early December—make a note on your calendar to check the deadline on October 1st

- Nova Scotia Graduate Scholarship (NSGS)
  - Up to $10,000/year, renewable for a second year
  - application deadline is usually in early April—make a note on your calendar to check the deadline on March 1st

- Durland Scholarships in Graduate Research
  - Very competitive entrance scholarship
  - $10,000/year for up to 2 years

When students apply for the NSERC or Durland scholarships, submitted applications are first ranked by the Applied Science program. Each Departmental Representative (see last page) is invited to score submitted applications according to the selection criteria provided by the scholarship organization. The Program Coordinator also scores the applications. The combined scores are used to rank applications, which are then sent to FGSR. The FGSR Awards Committee considers the ranked applications received from the Applied Science program together with applications submitted from other programs at SMU, and ultimately decides which students to offer scholarships to.

- Governor General's Gold Medal
  - Awarded annually to the graduating SMU student judged to have the most superior thesis

- Nominations are first made by a research supervisor, then the APSC Committee will select the final nominee.

- Georgia Pe-Piper Medal for Excellence in Applied Science
  - Awarded annually to the graduating APSC student judged to have the most superior thesis
  - Nominations are first made by a research supervisor, then the APSC Committee will select the final nominee.

Expense Reimbursements:

Whenever possible, research expenses should be paid for by your supervisor. In some situations, however, you may need to personally pay for research expenses and then file for reimbursement. For example, if you attend a conference in a different city you can apply for a per diem reimbursement to cover daily living expenses while away. To file for reimbursement, complete a Financial Services "Reimbursement Form" (see here for a completed example). You'll need to ask your supervisor for the "Account Information" section blank for your supervisor to complete. Make a personal copy of any related receipts, and then attach the original receipts to the form. Deliver the completed Expense Report and original receipts to your supervisor for completion, signature, and submission to Financial Services.

Who to Ask for Help

1. Ask your Supervisor

For all questions and concerns regarding the MSc in Applied Science program, seek help from your Supervisor before asking anyone else.

2. Ask your Departmental Representative, or the Student Representative

Each Department involved in the MSc in Applied Science program has a Departmental Representative. Here is the current list:

- Biology: Dr. Anne Dalziel
- Chemistry: Dr. Kai E. O. Ylijoki
- Finance, Information Systems, and Management Science: Dr. Majid Taghavi
- Geography: Dr. Mathew Novak
- Geology: Dr. Todd Ventura
- Mathematics and Computing Science: Dr. Somayeh Kafaie
- Anthropology/Forensic Science: Dr. Tim Frasier
- Astronomy & Physics: Dr. Rituparna Kanungo
- Psychology: Dr. Jason Ivanoff
- Engineering: Dr. Jason Rhinelander
- Environmental Science: Dr. Aldona Wiacek (Fall) Dr. Erin Cameron (Winter)

There are also two Student Representatives for the Applied Science program: TBA (MSc program) and Gaurav Rao (PhD program).

3. Ask the Program Manager, or Program Coordinator

Program Manager: Mr. Keith Bain
Science 221
(902) 491-6535
keith.bain@smu.ca

Program Coordinator: Dr. Kai E. O. Ylijoki
kai.ylijoki@smu.ca