

# COMPUTING AND DATA ANALYTICS, MSc

**Department Website:** <http://www.smu.ca/academics/msc-in-computing-and-data-analytics.html>

The Master of Science in Computing and Data Analytics (M.Sc. CDA) program is a graduate-level, professional program available to both full-time and part-time students. The program is founded on established principles of mathematics and computing science for industry and business analytics. It combines two essential aspects of computing and data analytics:

1. hardware and software platform design, development, customization, and management; and
2. Analytics, business intelligence and knowledge discovery: the acquisition, storage, management, and analysis of large amounts of data to improve efficiency, innovation and decision making.

It is an interdisciplinary applied program built on a solid foundation gained through a Bachelor of Science in Computing Science (or equivalent). The Program offers individuals the unique opportunity to gain a deeper technical skill set and a broader understanding of current and future trends in business and information technology (IT). The principles of business and industry practices are interwoven throughout the program.

The M.Sc. CDA is a rigorous graduate-level program that features innovative cross-disciplinary classes taught in a stimulating environment with opportunities for interaction with industry practitioners. The option of Internships or Projects elements following completion of the required courses provides flexibility in meeting students' goals. Under special circumstances with the permission of the Program Coordinator, students may combine internship and project options.

## Project Management Training

Project management is an important component of the program. Students will have informal exposure to elements of project management in the first two semesters, which will be supplemented with formal instructions in project management during the completion of one of the two options:

1. project
2. internship

The project training will include seminars on project management from leading experts. The students will use these more formal principles of project management in one of the two options:

1. project
2. internship

## Admission Requirements

The minimum Admission Requirements 1.a through 1.e (inclusive) as listed in the Academic Regulations section of this Faculty of Graduate Studies and Research (FGSR) Academic Calendar apply, with the following additional requirements:

1. a four-year Bachelor of Science in Computing Science degree (or equivalent) with a minimum cumulative GPA of 3.0 out of 4.3 (B).
2. a minimum score of 70% on a programming test followed by a technical interview administered by the M.Sc. CDA Program;
3. the Admissions Committee will also look for personal qualities, such as technical experience, leadership and motivation, which are important for success as a professional in Computing and Data Analytics.

## Procedure for Admission

Potential students who meet the minimum FGSR admission requirements and the M.Sc. CDA additional requirements as listed above are invited to apply according to the Procedure for Admission (<https://smu-ca-public.courseleaf.com/graduate/academic-regulations/admissions/>) as listed in the Academic Regulations of this FGSR Academic Calendar, plus additional procedures as outlined below. A complete application includes:

1. a completed online application including the application fee: <http://www.smu.ca/academics/apply-to-grad-studies.html> (<https://www.smu.ca/gradstudies/apply-to-grad-studies.html>)
2. a personal statement that includes a description of the applicant's expectations of the program and how this program would benefit the applicant. Applicants are encouraged to describe any qualities, accomplishments, or motivation they possess which they deem are important for success as a computing and data analytics professional.
3. official transcripts for all universities and colleges attended;
4. a curriculum vitae;
5. three completed Recommendation Forms sent directly from referees (at least one from an academic referee);
6. agreement of the applicant to a telephone, in person or online interview.

Only complete applications will be considered. It is the responsibility of the applicant to ensure that their application is complete. Application deadline is April 1 for International applicants and June 1 for Canadian applicants.

## Program Requirements

Students must comply with the FGSR Program Requirements (<https://smu-ca-public.courseleaf.com/graduate/academic-regulations/program-study-research/>) of the FGSR Academic Calendar. For a M.Sc. CDA, students must complete the following:

Code	Title	Credit Hours
<b>At least six courses (18 credit hours) numbered MCDA 5501 to MCDA 185584</b>		
MCDA 5510	Software Development in Business Environment	
MCDA 5511	Current Practices in Computing and Data Science I	
MCDA 5512	Current Practices in Computing and Data Science II	
MCDA 5520	Statistics and Its Applications in Business	
MCDA 5530	UI/UX Design and Quality Engineering	
MCDA 5540	Managing and Programming Databases	
MCDA 5550	Web, Mobile, and Cloud Application Development	
MCDA 5560	Business Intelligence and Data Visualization	
MCDA 5570	Big Data and Information Technology Management	

MCD 5580	Data and Text Mining	
MCD 5581	Deep Learning and Natural Language Processing	
<b>At least one course (6 credit hours) and at most 3 courses (18 credit 6-18 hours) numbered MCD 5585 or above</b>		
MCD 5585	Master's Project – System and Functional Analysis	
MCD 5586	Master's Project – Implementation and Analysis of Results	
MCD 5587	Graduate Internship I	
MCD 5588	Graduate Internship II	
MCD 5595	AMP: Implementation & Analysis	
MCD 5600	Internship	
Additional MCD Electives <sup>1</sup>		12
<b>Total Credit Hours</b>		<b>36</b>

<sup>1</sup> At least 6 credit hours must be MCD courses and the remaining 6 credit hours see Program Coordinator for approved options.

## Project Option

The project option will be flexible enough to allow students to address one or two major computing and data analytics problems. Typically, the project will be divided into three stages:

1. proposal
2. prototype
3. final product

Students will present their work from each stage in front of a supervisory committee consisting of the project supervisor and two other faculty members from the program. The program will draw from local industry professionals for project supervision. Project leaders from local software and data analytics organizations will be invited to co-supervise projects along with faculty members from the program. Faculty members will help ensure the academic requirements of the project are met, while industry professionals will help with the practical and applied aspects of the project work. Students can complete a new project within the context of their existing employment that implements principles of computing and data analytics as a part of the project option. Such a project must satisfy requirements of the two project courses Master's Project – System and Functional Analysis (MCD 5585) and Master's Project – Implementation and Analysis of Results (MCD 5586).

## Internship Option

Students will benefit from immersion at Computing and Data Analytics organizations through further industry exposure and opportunities for experiential learning. Each student will have an academic supervisor and an onsite supervisor. The program/university will award the final grade of pass or fail to ensure a consistent evaluation mechanism. Internship students will need to write and submit a report of their internship activities and measured achievements one month before the end of their internship. An academic supervisor will use the onsite supervisor's feedback and student's report to assess whether the scope of the reported work is sufficient to fulfill the requirements of the degree program. Students cannot use their existing employment as an internship option. They can complete a new project within the context of their existing employment to satisfy the requirements of the project option (please see project option for more details).