SPECIALIST PROGRAM IN MANAGEMENT AND ACCOUNTING (BACHELOR OF BUSINESS ADMINISTRATION) - SCSPE2432A

Academic Director: S. Ahmed Email: mgmtss@utsc.utoronto.ca

This Program is designed students interested in acquiring a concentrated core of accounting and related knowledge that is required to become a professional accountant. It provides a solid foundation to prepare students to become Chartered Professional Accountants after graduation. In addition, the Specialist Program provides students with the personal and professional attributes necessary to build a successful career in senior management.

The Program encompasses topics such as introductory to advanced financial and managerial accounting, assurance, taxation, economics, and finance. There is also a range of more advanced electives which cover topics and competencies that incorporate critical thinking and ethical decision making.

Enrolment Requirements
Enrolment in this Program is limited.

1. Students enrolling directly from high school are admitted on the basis of academic performance. They must have completed Grade 12 English and Grade 12 Calculus.

Course Guidelines for Students Admitted to B.B.A. Programs Directly from High School Students must complete the following courses in their first year of study: MGEA02H3, MGEA06H3, MATA34H3, MGAB01H3, MGAB02H3, MGHA12H3, MGMA01H3 and MGTA38H3.

2. Students requesting admission after the first year must request ONLY ONE Management Subject POSt on ACORN. Students may apply at the end of the Winter semester and/or at the end of the Summer semester. Application for admission will be considered only for the round during which the student has made the Subject POSt request.

The minimum Cumulative Grade Point Average (CGPA) for Program admission is calculated for each application period, and is based on University of Toronto courses only. Decisions are made when all grades have been received.

Students must have completed the following courses (or their equivalent): MGEA02H3, MGEA06H3, and MATA34H3. However, [[MATA29H3 or MATA30H3 or MATA31H3 or (MATA32H3)] and [(MATA33H3) or MATA35H3 or MATA36H3 or MATA37H3]] may also be used to satisfy the calculus requirement. None of the courses listed above (or their equivalent) can be designated as CR/NCR. Of the total credits that students have completed when they apply, at least 4.0 credits just in University of Toronto courses that have been graded (i.e., not designated as CR/NCR). Students may apply until they have completed up to 10.0 credits. Students who have completed more than 10.0 credits will not be considered for admission to the Program.

In order to remain in the Program, students must maintain a CGPA of 2.0 or higher after having attempted at least 4.0 credits. Students whose CGPA falls below 2.0 will be removed from the Program. Students removed from the program, for this reason, may request reinstatement if they complete at least 2.0 credits (none of which can be designated as CR/NCR) in the following session and raise their CGPA to at least 2.0. This opportunity will be provided only once.

Program Requirements
The Program requires the completion of 14.5 credits as part of a twenty-credit B.B.A. degree.

Note: A single course may only be used once to fulfill one of the following requirements:

1. (6.5 credits):
MGMA01H3 Principles of Marketing
MGTA38H3 Management Communications
MGAB01H3 Introductory Financial Accounting I
MGAB02H3 Introductory Financial Accounting II
MGAB03H3 Introductory Management Accounting
MGFB10H3 Principles of Finance
MGHA12H3 Human Resource Management
MGHB02H3 Managing People and Groups in Organizations
MGMB01H3 Marketing Management
MGFC10H3 Intermediate Finance
MGHC02H3 Management Skills
MGOC10H3 Analytics for Decision Making
MGOC20H3 Operations Management

2. (0.5 credit):
MATA34H3
or
[[MATA29H3/MATA30H3/MATA31H3/(MATA32H3)] and [(MATA33H3)/MATA35H3/MATA36H3/MATA37H3]]

3. (3.0 credits):
MGEA02H3 Introduction to Microeconomics: A Mathematical Approach
MGEA06H3 Introduction to Macroeconomics: A Mathematical Approach
MGEB02H3 Price Theory: A Mathematical Approach
MGEB06H3 Macroeconomic Theory and Policy: A Mathematical Approach
MGEB11H3 Quantitative Methods in Economics I
MGEB12H3 Quantitative Methods in Economics II

4. (4.0 credits):
MGAC01H3 Intermediate Financial Accounting I
MGAC02H3 Intermediate Financial Accounting II
MGAC03H3 Intermediate Management Accounting
MGSC30H3 The Legal Environment of Business I
MGAC50H3 Canadian Income Taxation I
MGAC70H3 Management Information Systems
MGAC10H3 Auditing
MGAD70H3 Advanced Accounting Case Analysis: A Capstone Course

5. At least 0.5 credit at the D-level course from:
MGAD20H3 Advanced Auditing
MGAD40H3 Management Control Systems
MGAD45H3 Corporate Governance and Strategy: CPA Perspective
MGAD50H3 Advanced Financial Accounting
MGAD65H3 Canadian Income Taxation II

Notes:

1. In selecting options and electives, students should refer to the guidelines for program breadth and depth found in the Degree Requirements section of the UTSC *Calendar*.

2. The Chartered Professional Accountancy (CPA) requirements:
Students interested in the CPA designation must also complete: MGAD40H3 Management Control Systems, MGAD50H3 Advanced Financial Accounting, MGAD65H3 Canadian Income Taxation II, MGAD20H3 Advanced Auditing and MGAD45H3 Corporate Governance and Strategy: CPA Perspective.

Students are strongly advised to refer to the CPA Ontario website. This website will have the designation's specified minimum grade and the updated program requirements. It is imperative that students check the following website regularly for current information.

Calendar Section: Management

SPECIALIST PROGRAM IN MANAGEMENT AND FINANCE (BACHELOR OF BUSINESS ADMINISTRATION) - SCSPE2432F

Academic Director: S. Ahmed Email: mgmtss@utsc.utoronto.ca

This Program builds on the core of the Specialist in Management Program and offers a deeper and wider coverage of Finance topics. The Program will equip students with a comprehensive understanding of financial issues and concepts, and with a firm mastery of methodologies and problem solving skills required in modern-day finance.

Enrolment Requirements

Enrolment in this Program is limited.

1. Students enrolling directly from high school are admitted on the basis of academic performance. They must have completed Grade 12 English and Grade 12 Calculus.

Course Guidelines for Students Admitted to B.B.A. Programs Directly from High School Students must complete the following courses in their first year of study: MGEA02H3, MGEA06H3, MATA34H3, MGAB01H3, MGAB02H3, MGHA12H3, MGMA01H3 and MGTA38H3.

2. Students requesting admission after first year must request ONLY ONE Management Subject POSt on ACORN. Students may apply at the end of the Winter semester and/or at the end of the Summer semester. Application for admission will be considered only for the round during which the student has made the Subject POSt request.

The minimum Cumulative Grade Point Average (CGPA) for Program admission is calculated for each application period, and is based on University of Toronto courses only. Decisions are made when all grades have been received.

Students must have completed the following courses (or their equivalent): MGEA02H3, MGEA06H3, and MATA34H3. However [[MATA29H3 or MATA30H3 or MATA31H3 or (MATA32H3)] and [(MATA33H3) or MATA35H3 or MATA36H3 or MATA37H3]] may also be used to satisfy the calculus requirement. None of the courses listed above (or their equivalent) can be designated as CR/NCR. Of the total credits that students have completed when they apply, at least 4.0 credits just in University of Toronto courses that have been graded (i.e., not designated as CR/NCR). Students may apply until they have completed up to 10.0 credits. Students who have completed more than 10.0 credits will not be considered for admission to the Program.

In order to remain in the Program, students must maintain a CGPA of 2.0 or higher after having attempted at least 4.0 credits. Students whose CGPA falls below 2.0 will be removed from the Program. Students removed from the program, for this reason, may request reinstatement if they complete at least 2.0 credits (none of which can be designated as CR/NCR) in the following session and raise their CGPA to at least 2.0. This opportunity will be provided only once.

Program Requirements
The Program requires the completion of 13.5 credits as part of a twenty-credit B.B.A. degree.

Note: A single course may only be used once to fulfill one of the following requirements:

1. (6.5 credits):
MGMA01H3 Principles of Marketing
MGTA38H3 Management Communications
MGAB01H3 Introductory Financial Accounting I
MGAB02H3 Introductory Financial Accounting II
MGAB03H3 Introductory Management Accounting
MGFB10H3 Principles of Finance
MGHA12H3 Human Resource Management
MGHB02H3 Managing People and Groups in Organizations
MGMB01H3 Marketing Management
MGFC10H3 Intermediate Finance
MGHC02H3 Management Skills
MGOC10H3 Analytics for Decision Making
MGOC20H3 Operations Management

2. (0.5 credit):
MATA34H3
or
[[MATA29H3/MATA30H3/MATA31H3/(MATA32H3)] and [(MATA33H3)/MATA35H3/MATA36H3/MATA37H3]]

3. At least 0.5 credit of courses emphasizing strategic management, chosen from:
MGSB01H3 Introduction to Strategy
MGSC01H3 Strategic Management I
MGSC03H3 Public Management
MGSC05H3 The Changing World of Business-Government Relations
MGSC10H3 Business Strategy in the Digital Age
MGSC12H3 Narrative and Management
MGSC14H3 Management Ethics
MGSC20H3 Consulting and Contracting: New Ways of Work
MGSB22H3 Entrepreneurship
MGSD24H3 New Venture Creation and Planning
MGSC30H3 The Legal Environment of Business I

4. (3.0 credits):
MGEA02H3 Introduction to Microeconomics: A Mathematical Approach
MGEA06H3 Introduction to Macroeconomics: A Mathematical Approach
MGEB02H3 Price Theory: A Mathematical Approach
MGEB06H3 Macroeconomic Theory and Policy: A Mathematical Approach
MGEB11H3 Quantitative Methods in Economics I

MGEB12H3 Quantitative Methods in Economics II

5. (1.0 credit):
MGFC30H3 Introduction to Derivative Markets
MGFC35H3/(MGFD10H3) Investments

6. At least 2.0 credits from:
MGEC71H3 Money and Banking
MGFC20H3 Personal Financial Management?
MGFC45H3 Portfolio Management: Theory and Practice
MGFC50H3 International Financial Management
MGFC60H3 Financial Statement Analysis & Security Valuation
MGFD15H3 Private Equity
MGFD25H3 Financial Technologies and Applications (FinTech)
MGFD30H3 Risk Management
MGFD40H3 Investor Psychology & Behavioural Finance
MGFD50H3 Mergers & Acquisitions: Theory & Practice
MGFD60H3 Financial Modelling & Trading Strategies
MGFD70H3 Advanced Financial Management

Note: In selecting options and electives, students should refer to the guidelines for program breadth and depth found in the Degree Requirements section of the UTSC *Calendar*.

Calendar Section: Management

SPECIALIST PROGRAM IN MANAGEMENT AND HUMAN RESOURCES (BACHELOR OF BUSINESS ADMINISTRATION) - SCSPE2432H

Academic Director: S. Ahmed Email: mgmtss@utsc.utoronto.ca

This Program is designed to give students a broad exposure to all functional areas of Management as well as specialization in the area of Human Resource Management (HRM). HRM is an area that encompasses topics such as recruitment and selection, performance management, compensation, and industrial relations. By taking a B.B.A. with a specialist in HRM, you will be qualified to work in any area of Human Resource Management, to take a graduate degree in HRM (potentially with advance standing), and you will be well prepared for the CHRP certification exam required by many organizations for upper-level HR positions. In order to qualify for CHRP certification, you must maintain an average of at least 70% across the 9 courses required by CHRP and at least 65% in each of those 9 courses.

By completing this Specialist Program in Management and Human Resources, you will cover the nine required CHRP courses.

Enrolment Requirements
Enrolment in this Program is limited.

1. Students enrolling directly from high school are admitted on the basis of academic performance. They must have completed Grade 12 English and Grade 12 Calculus.

Course Guidelines for Students Admitted to B.B.A. Programs Directly from High School Students must complete the following courses in their first year of study: MGEA02H3, MGEA06H3, MATA34H3, MGAB01H3, MGAB02H3, MGHA12H3, MGMA01H3 and MGTA38H3.

2. Students requesting admission after first year must request ONLY ONE Management Subject POSt on ACORN. Students may apply at the end of the Winter semester and/or at the end of the Summer semester. Application for admission will be considered only for the round during which the student has made the Subject POSt request.

The minimum Cumulative Grade Point Average (CGPA) for Program admission is calculated for each application period, and is based on University of Toronto courses only. Decisions are made when all grades have been received.

Students must have completed the following courses (or their equivalent): MGEA02H3, MGEA06H3, and MATA34H3. However, [[MATA29H3 or MATA30H3 or MATA31H3 or (MATA32H3)] and [(MATA33H3) or MATA35H3 or MATA36H3 or

MATA37H3]] may also be used to satisfy the calculus requirement. None of the courses listed above (or their equivalent) can be designated as CR/NCR. Of the total credits that students have completed when they apply, at least 4.0 credits just in University of Toronto courses that have been graded (i.e., not designated as CR/NCR). Students may apply until they have completed up to 10.0 credits. Students who have completed more than 10.0 credits will not be considered for admission to the Program.

In order to remain in the Program, students must maintain a CGPA of 2.0 or higher after having attempted at least 4.0 credits. Students whose CGPA falls below 2.0 will be removed from the Program. Students removed from the program, for this reason, may request reinstatement if they complete at least 2.0 credits (none of which can be designated as CR/NCR) in the following session and raise their CGPA to at least 2.0. This opportunity will be provided only once.

Program Requirements
The Program requires the completion of 13.5 credits as part of a twenty-credit B.B.A.degree.

Note: A single course may only be used once to fulfill one of the following requirements:

1. (6.5 credits):
MGMA01H3 Principles of Marketing
MGTA38H3 Management Communications
MGAB01H3 Introductory Financial Accounting I
MGAB02H3 Introductory Financial Accounting II
MGAB03H3 Introductory Management Accounting
MGFB10H3 Principles of Finance
MGHA12H3 Human Resource Management
MGHB02H3 Managing People and Groups in Organizations
MGMB01H3 Marketing Management
MGFC10H3 Intermediate Finance
MGHC02H3 Management Skills
MGOC10H3 Analytics for Decision Making
MGOC20H3 Operations Management

2. (0.5 credit):
MATA34H3
or
[[MATA29H3/MATA30H3/MATA31H3/(MATA32H3)] and [(MATA33H3)/MATA35H3/MATA36H3/MATA37H3]]

3. At least 0.5 credit of courses emphasizing strategic management, chosen from:
MGSB01H3 Introduction to Strategy
MGSC01H3 Strategic Management I
MGSC03H3 Public Management
MGSC05H3 The Changing World of Business-Government Relations
MGSC10H3 Business Strategy in the Digital Age
MGSC12H3 Narrative and Management
MGSC14H3 Management Ethics
MGSC20H3 Consulting and Contracting: New Ways of Work
MGSB22H3 Entrepreneurship
MGSD24H3 New Venture Creation and Planning
MGSC30H3 The Legal Environment of Business I

4. (3.0 credits):
MGEA02H3 Introduction to Microeconomics: A Mathematical Approach
MGEA06H3 Introduction to Macroeconomics: A Mathematical Approach
MGEB02H3 Price Theory: A Mathematical Approach
MGEB06H3 Macroeconomic Theory and Policy: A Mathematical Approach
MGEB11H3 Quantitative Methods in Economics I
MGEB12H3 Quantitative Methods in Economics II

5. (3.0 credits):
MGHC53H3 Introduction to Industrial Relations
MGHD24H3 Occupational Health and Safety Management
MGHD25H3 Human Resources Recruitment & Selection
MGHD26H3 Training and Development
MGHD27H3 Human Resources Planning and Strategy
MGHD28H3 Compensation

Note: In selecting options and electives, students should refer to the guidelines for program breadth and depth found in the Degree Requirements section of the UTSC *Calendar*.

Calendar Section: Management

SPECIALIST PROGRAM IN MANAGEMENT AND INFORMATION TECHNOLOGY (BACHELOR OF BUSINESS ADMINISTRATION) - SCSPE2431Q

Academic Director: S. Ahmed E-mail: mgmtss@utsc.utoronto.ca

This Program is designed to give students a broad exposure to all functional areas of Management as well as a solid grounding in Computer Science.

Enrolment Requirements
Enrolment in this Program is limited.

1. Students enrolling directly from high school are admitted on the basis of academic performance. They must have completed Grade 12 English and Grade 12 Calculus.

Course Guidelines for Students Admitted to B.B.A. Programs Directly from High School Students must complete the following courses in their first year of study: MGEA02H3, MGEA06H3, CSCA08H3, CSCA48H3, MATA34H3, MGHA12H3, MGMA01H3, and MGTA38H3.

2. Students requesting admission after first year must request ONLY ONE Management Subject POSt on ACORN. Students may apply at the end of the Winter semester and/or at the end of the Summer semester. Application for admission will be considered only for the round during which the student has made the Subject POSt request.

The minimum Cumulative Grade Point Average (CGPA) for Program admission is calculated for each application period, and is based on University of Toronto courses only. Decisions are made when all grades have been received.

Students must have completed the following courses (or their equivalent): MGEA02H3, MGEA06H3, and MATA34H3. However, [[MATA29H3 or MATA30H3 or MATA31H3 or (MATA32H3)] and [(MATA33H3) or MATA35H3 or MATA36H3 or MATA37H3]] may also be used to satisfy the calculus requirement. None of the courses listed above (or their equivalent) can be designated as CR/NCR. Of the total credits that students have completed when they apply, at least 4.0 credits just in University of Toronto courses that have been graded (i.e., not designated as CR/NCR). Students may apply until they have completed up to 10.0 credits. Students who have completed more than 10.0 credits will not be considered for admission to the Program.

In order to remain in the Program, students must maintain a CGPA of 2.0 or higher after having attempted at least 4.0 credits. Students whose CGPA falls below 2.0 will be removed from the Program. Students removed from the program, for this reason, may request reinstatement if they complete at least 2.0 credits (none of which can be designated as CR/NCR) in the following session and raise their CGPA to at least 2.0. This opportunity will be provided only once.

Program Requirements
The Program requires the completion of 14.0 credits as part of a twenty-credit B.B.A. degree.

Note: A single course may only be used once to fulfill one of the following requirements:

1. (6.5 credits):
MGMA01H3 Principles of Marketing
MGTA38H3 Management Communications
MGAB01H3 Introductory Financial Accounting I
MGAB02H3 Introductory Financial Accounting II
MGAB03H3 Introductory Management Accounting
MGFB10H3 Principles of Finance
MGHA12H3 Human Resource Management
MGHB02H3 Managing People and Groups in Organizations
MGMB01H3 Marketing Management
MGFC10H3 Intermediate Finance
MGHC02H3 Management Skills
MGOC10H3 Analytics for Decision Making
MGOC20H3 Operations Management

2. (0.5 credit):
MATA34H3
or

[[MATA29H3/MATA30H3/MATA31H3/(MATA32H3)] and [(MATA33H3)/MATA35H3/MATA36H3/MATA37H3]]

3. (3.0 credits):
CSCA08H3 Introduction to Computer Science I
CSCA48H3 Introduction to Computer Science II
CSCB07H3 Software Design
CSCB09H3 Software Tools and Systems Software
CSCB20H3 Introduction to Databases and Web Applications
CSCC01H3 Introduction to Software Engineering

4. (3.0 credits):
MGEA02H3 Introduction to Microeconomics: A Mathematical Approach
MGEA06H3 Introduction to Macroeconomics: A Mathematical Approach
MGEB02H3 Price Theory: A Mathematical Approach
MGEB06H3 Macroeconomic Theory and Policy: A Mathematical Approach
MGEB11H3 Quantitative Methods in Economics I
MGEB12H3 Quantitative Methods in Economics II

5. (0.5 credit):
MGSD15H3 Managing in the Information Economy
or
MGSD55H3 Strategy and Technology

6. 0.5 credit at the D-level in Management, Economics or CSC courses.

Note: In selecting options and electives, students should refer to the guidelines for program breadth and depth found in the Degree Requirements section of the UTSC *Calendar*.

Calendar Section: Management

SPECIALIST PROGRAM IN MANAGEMENT AND MARKETING (BACHELOR OF BUSINESS ADMINISTRATION) - SCSPE2432M

Academic Director: S. Ahmed E-mail: mgmtss@utsc.utoronto.ca

This Program gives students the perspective of the overall organization and beyond. In addition to the company focus, Marketing also ensures that students take an external orientation by having an in-depth understanding of the competition and the consumer. While developing a good understanding of all the issues involved in developing marketing strategy, the student will learn to implement the tools of marketing tactics.

Enrolment Requirements
Enrolment in this Program is limited.

1. Students enrolling directly from high school are admitted on the basis of academic performance. They must have completed Grade 12 English and Grade 12 Calculus.

Course Guidelines for Students Admitted to B.B.A. Programs Directly from High School Students must complete the following courses in their first year of study: MGEA02H3, MGEA06H3, MATA34H3, MGAB01H3, MGAB02H3, MGHA12H3, MGMA01H3 and MGTA38H3.

2. Students requesting admission after first year must request ONLY ONE Management Subject POSt on ACORN. Students may apply at the end of the Winter semester and/or at the end of the Summer semester. Application for admission will be considered only for the round during which the student has made the Subject POSt request.

The minimum Cumulative Grade Point Average (CGPA) for Program admission is calculated for each application period, and is based on University of Toronto courses only. Decisions are made when all grades have been received.

Students must have completed the following courses (or their equivalent): MGEA02H3, MGEA06H3, and MATA34H3. However [[MATA29H3 or MATA30H3 or MATA31H3 or (MATA32H3)] and [(MATA33H3) or MATA35H3 or MATA36H3 or MATA37H3]] may also be used to satisfy the calculus requirement. None of the courses listed above (or their equivalent) can be designated as CR/NCR. Of the total credits that students have completed when they apply, at least 4.0 credits just in University of Toronto courses that have been graded (i.e., not designated as CR/NCR). Students may apply until they have

completed up to 10.0 credits. Students who have completed more than 10.0 credits will not be considered for admission to the Program.

In order to remain in the Program, students must maintain a CGPA of 2.0 or higher after having attempted at least 4.0 credits. Students whose CGPA falls below 2.0 will be removed from the Program. Students removed from the program, for this reason, may request reinstatement if they complete at least 2.0 credits (none of which can be designated as CR/NCR) in the following session and raise their CGPA to at least 2.0. This opportunity will be provided only once.

Program Requirements
The Program requires the completion of 13.5 credits as part of a twenty-credit B.B.A. degree.

Note: A single course may only be used once to fulfill one of the following requirements:

1. (6.5 credits):
MGMA01H3 Principles of Marketing
MGTA38H3 Management Communications
MGAB01H3 Introductory Financial Accounting I
MGAB02H3 Introductory Financial Accounting II
MGAB03H3 Introductory Management Accounting
MGFB10H3 Principles of Finance
MGHA12H3 Human Resource Management
MGHB02H3 Managing People and Groups in Organizations
MGMB01H3 Marketing Management
MGFC10H3 Intermediate Finance
MGHC02H3 Management Skills
MGOC10H3 Analytics for Decision Making
MGOC20H3 Operations Management

2. (0.5 credit):
MATA34H3
or
[[MATA29H3/MATA30H3/MATA31H3/(MATA32H3)] and [(MATA33H3)/MATA35H3/MATA36H3/MATA37H3]]

3. At least 0.5 credit of courses emphasizing strategic management, chosen from:
MGSB01H3 Introduction to Strategy
MGSC01H3 Strategic Management I
MGSC03H3 Public Management
MGSC05H3 The Changing World of Business-Government Relations
MGSC10H3 Business Strategy in the Digital Age
MGSC12H3 Narrative and Management
MGSC14H3 Management Ethics
MGSC20H3 Consulting and Contracting: New Ways of Work
MGSB22H3 Entrepreneurship
MGSD24H3 New Venture Creation and Planning
MGSC30H3 The Legal Environment of Business I

4. (3.0 credits):
MGEA02H3 Introduction to Microeconomics: A Mathematical Approach
MGEA06H3 Introduction to Macroeconomics: A Mathematical Approach
MGEB02H3 Price Theory: A Mathematical Approach
MGEB06H3 Macroeconomic Theory and Policy: A Mathematical Approach
MGEB11H3 Quantitative Methods in Economics I
MGEB12H3 Quantitative Methods in Economics II

5. 6 of the following courses (3.0 credits):
MGMC01H3 Market Research
MGMC02H3 Consumer Behaviour
MGMC11H3 Product Management and Branding
MGMC12H3 Advertising: From Theory to Practice
MGMC13H3 Pricing Strategy
MGMC14H3 Sales and Distribution Management
MGMD01H3 Applied Marketing Models
MGMD02H3 Judgement and Decision Making
MGMD10H3 Seminar in Consumer Psychology I
MGMD11H3 Seminar in Consumer Psychology II
MGMD19H3 Advanced Special Topics in Marketing II
MGMD20H3 Advanced Special Topics in Marketing I
MGMD21H3 Competitive Marketing in Action

Note: In selecting options and electives, students should refer to the guidelines for program breadth and depth found in the Degree Requirements section of the UTSC *Calendar*.

Calendar Section: Management

SPECIALIST PROGRAM IN MATHEMATICS - Comprehensive Stream (SCIENCE) - SCSPE11659

Supervisor of Studies: Prof. Michael Cavers michael.cavers@utoronto.ca

Program Objectives
This program provides the student with a sound foundation in the main areas of mathematics, and some exposure to computer programming and statistics. It comprises three streams: Comprehensive, Statistics, and Teaching, each serving a more specific goal.

The **Comprehensive Stream** provides a broad and deep knowledge of mathematics at the undergraduate level. It is the recommended program for students who plan to pursue graduate study in mathematics, but it is also suitable for other career paths.

Enrolment Requirements

Enrolment in the Specialist Program in Mathematics (all streams) is limited. Students may apply to enter the program after completing 4.0 credits, and must meet the requirements described below:

1. Students already admitted to the UTSC Year 1 Mathematics admissions category:

Required Courses:

Students must have passed the following CSC and MAT courses: CSCA08H3, [CSCA67H3 or MATA67H3], MATA22H3, MATA31H3, and MATA37H3.

Required Grades:

Students that meet all of the following requirements will be admitted to a Mathematics Specialist POSt* of their choice:
a. A cumulative grade point average (CGPA) of at least 2.5 over the following courses: CSC/MATA67H, MATA22H3, MATA31H3, and MATA37H3; and
b. A final grade of at least B in two of the following: CSC/MATA67H3, MATA22H3, and MATA37H3.

*Students must select one stream of the Mathematics Specialist.

2. Students admitted to other UTSC Year 1 admissions categories:

Students that have been admitted to other CMS admissions categories (Computer Science or Statistics) or any other of the UTSC Year 1 admissions categories are eligible to apply for a Mathematics Specialist POSt. Admission will be based on academic performance in the required A-level courses, identified above. The admission requirements change each year depending on available spaces and the pool of eligible applicants, and students are cautioned that there is no guarantee of admission; as such, students are strongly advised to plan to enroll in backup programs.

For more information about the admission requirements, please visit the following CMS webpage.

Program Requirements
The Program requirements consist of a core 15 courses (7.5 credits), common to all streams, and additional requirements that depend on the stream, for a total of 26-27 courses (13.0-13.5 credits).

The structure of the programs allows for easy switching between streams until relatively late. Consequently, these programs should not be viewed as rigidly separated channels feeding students to different career paths, but as a flexible structure that provides guidance to students in their course selection based on their broad (but possibly fluid) interests.

Core (7.5 credits)

1. Writing Requirement (0.5 credit)(*)
0.5 credits from the following: ANTA01H3, ANTA02H3, CLAA06H3, (CTLA19H3), CTLA01H3, ENGA10H3, ENGA11H3,

ENGB06H3, ENGB07H3, ENGB08H3, ENGB09H3, ENGB17H3, ENGB19H3, ENGB50H3, (ENGB51H3), GGRA02H3, GGRA03H3, GGRB05H3, (GGRB06H3), (HISA01H3), (HLTA01H3), ACMA01H3, (HUMA01H3), (HUMA11H3), (HUMA17H3), (LGGA99H3), LINA01H3, PHLA10H3, WSTA01H3.
(*) It is recommended that this requirement be satisfied by the end of the second year.

2. A-level courses (2.5 credits)
CSCA08H3 Introduction to Computer Science I
MATA22H3 Linear Algebra I for Mathematical Sciences
MATA31H3 Calculus I for Mathematical Sciences
MATA37H3 Calculus II for Mathematical Sciences
[MATA67H3 or CSCA67H3 Discrete Mathematics]

3. B-level courses (3.5 credits)
MATB24H3 Linear Algebra II
MATB41H3 Techniques of the Calculus of Several Variables I
MATB42H3 Techniques of the Calculus of Several Variables II
MATB43H3 Introduction to Analysis
MATB44H3 Differential Equations I
STAB52H3 Introduction to Probability (**)
STAB57H3 Introduction to Statistics (**)
(**) This course may be taken after the second year, except for the Statistics stream.

4. C-level courses (1.0 credit)
MATC01H3 Groups and Symmetry
MATC34H3 Complex Variables

Comprehensive Stream
This stream requires a total of 27 courses (13.5 credits) In addition to the core requirements 1-4 common to all streams, 12 other distinct courses must be chosen satisfying all of the following requirements:

5. Additional courses in analysis and algebra (1.5 credits):
1.5 credits from the following:
MATC37H3 Introduction to Real Analysis
MATC46H3 Differential Equations II
MATD01H3 Fields and Groups
MATD35H3 Introduction to Discrete Dynamical Systems
MATD46H3 Partial Differential Equations

6. Courses in key areas of mathematics (1.0 credit):
1.0 credit from the following:
MATC15H3 Introduction to Number Theory
MATC27H3 Introduction to Topology
MATC63H3 Differential Geometry
MATD02H3 Classical Plane Geometries and their Transformations
MATD34H3 Complex Variables II

7. Mathematics of computation (1.0 credit):
1.0 credit from the following:
CSCC37H3 Introduction to Numerical Algorithms for Computational Mathematics
CSCC63H3 Computability and Computational Complexity
CSCC73H3 Algorithm Design and Analysis
MATC09H3 Introduction to Mathematical Logic
MATC32H3 Graph Theory and Algorithms for its Applications
MATC44H3 Introduction to Combinatorics
MATD16H3 Coding Theory and Cryptography
MATD44H3 Topics in Combinatorics

8. Electives (2.5 credits):
2.5 credits from CSC/MAT/STA/PHY of which at least 1.5 must be at the C- or D-level MAT courses.

Calendar Section: Mathematics

SPECIALIST PROGRAM IN MATHEMATICS - Statistics Stream (SCIENCE) - SCSPE11655

Supervisor of Studies: Prof. Michael Cavers michael.cavers@utoronto.ca

Program Objectives
This program provides the student with a sound foundation in the main areas of mathematics, and some exposure to computer programming and statistics. It comprises three streams: Comprehensive, Statistics, and Teaching, each serving a more specific goal.

The **Statistics Stream** provides greater exposure to statistics, and the areas of mathematics most closely associated with it. This stream prepares students for careers in industry, or for graduate study in certain mathematically-oriented subjects, including statistics and financial mathematics.

Enrolment Requirements

Enrolment in the Specialist Program in Mathematics (all streams) is limited. Students may apply to enter the program after completing 4.0 credits, and must meet the requirements described below:

1. Students already admitted to the UTSC Year 1 Mathematics admissions category:

Required Courses:

Students must have passed the following CSC and MAT courses: CSCA08H3, [CSCA67H3 or MATA67H3], MATA22H3, MATA31H3, and MATA37H3.

Required Grades:

Students that meet all of the following requirements will be admitted to a Mathematics Specialist POSt* of their choice:
a. A cumulative grade point average (CGPA) of at least 2.5 over the following courses: CSC/MATA67H, MATA22H3, MATA31H3, and MATA37H3; and
b. A final grade of at least B in two of the following: CSC/MATA67H3, MATA22H3, and MATA37H3.

*Students must select one stream of the Mathematics Specialist.

2. Students admitted to other UTSC Year 1 admissions categories:

Students that have been admitted to other CMS admissions categories (Computer Science or Statistics) or any other of the UTSC Year 1 admissions categories are eligible to apply for a Mathematics Specialist POSt. Admission will be based on academic performance in the required A-level courses, identified above. The admission requirements change each year depending on available spaces and the pool of eligible applicants, and students are cautioned that there is no guarantee of admission; as such, students are strongly advised to plan to enroll in backup programs.

For more information about the admission requirements, please visit the following CMS webpage.

Program Requirements
The Program requirements consist of a core 15 courses (7.5 credits), common to all streams, and additional requirements that depend on the stream, for a total of 26-27 courses (13.0-13.5 credits).

The structure of the programs allows for easy switching between streams until relatively late. Consequently, these programs should not be viewed as rigidly separated channels feeding students to different career paths, but as a flexible structure that provides guidance to students in their course selection based on their broad (but possibly fluid) interests.

Core (7.5 credits)

1. Writing Requirement (0.5 credit)(*)
0.5 credits from the following: ANTA01H3, ANTA02H3, CLAA06H3, (CTLA19H3), CTLA01H3, ENGA10H3, ENGA11H3, ENGB06H3, ENGB07H3, ENGB08H3, ENGB09H3, ENGB17H3, ENGB19H3, ENGB50H3, (ENGB51H3), GGRA02H3, GGRA03H3, GGRB05H3, (GGRB06H3), (HISA01H3), (HLTA01H3), ACMA01H3, (HUMA01H3), (HUMA11H3), (HUMA17H3), (LGGA99H3), LINA01H3, PHLA10H3, WSTA01H3.
(*) It is recommended that this requirement be satisfied by the end of the second year.

2. A-level courses (2.5 credits)
CSCA08H3 Introduction to Computer Science I
MATA22H3 Linear Algebra I for Mathematical Sciences
MATA31H3 Calculus I for Mathematical Sciences
MATA37H3 Calculus II for Mathematical Sciences

[MATA67H3 or CSCA67H3 Discrete Mathematics]

3. B-level courses (3.5 credits)
MATB24H3 Linear Algebra II
MATB41H3 Techniques of the Calculus of Several Variables I
MATB42H3 Techniques of the Calculus of Several Variables II
MATB43H3 Introduction to Analysis
MATB44H3 Differential Equations I
STAB52H3 Introduction to Probability (**)
STAB57H3 Introduction to Statistics (**)
(**) This course may be taken after the second year, except for the Statistics stream.

4. C-level courses (1.0 credit)
MATC01H3 Groups and Symmetry
MATC34H3 Complex Variables

Statistics Stream
This stream requires a total of 26 courses (13.0 credits). In addition to the core requirements 1-4 common to all streams, 11 other distinct courses must be chosen, satisfying all of the following requirements (in choosing courses to satisfy requirements 7-9, students must select at least one D-level course).

5. Algebra and Analysis (1.5 credits):
MATB61H3 Linear Programming and Optimization
MATC46H3 Differential Equations II
MATD01H3 Fields and Groups

6. Statistics (1.5 credits):
STAC58H3 Statistical Inference
STAC62H3 Probability and Stochastic Processes I
STAC67H3 Regression Analysis

7. Discrete mathematics and geometry (0.5 credit):
0.5 credit from the following:
MATC32H3 Graph Theory and Algorithms for its Applications
MATC44H3 Introduction to Combinatorics
MATD02H3 Classical Plane Geometries and their Transformations
MATD44H3 Topics in Combinatorics
MATD50H3 Mathematical Introduction to Game Theory

8. Upper-level MAT electives (1.0 credit):
1.0 credit from any C- or D-level MAT courses (*)
(*) For students wishing to pursue graduate studies in Mathematics or Statistics it is recommended that MATC37H3 be chosen as one of these two courses.

9. Upper-level STA electives (1.0 credit):
1.0 credit from the following:
(ACTB47H3) Introductory Life Contingencies
Any C- or D-level STA course, excluding STAC32H3, STAC53H3 and STAD29H3

Calendar Section: Mathematics

SPECIALIST PROGRAM IN MATHEMATICS - Teaching Stream (SCIENCE) - SCSPE11653

Supervisor of Studies: Prof. Michael Cavers michael.cavers@utoronto.ca

Program Objectives
This program provides the student with a sound foundation in the main areas of mathematics, and some exposure to computer programming and statistics. It comprises three streams: Comprehensive, Statistics, and Teaching, each serving a more specific goal.

The **Teaching Stream** is intended for students with a serious interest in mathematics but whose career objectives lie in mathematics education at the elementary or secondary level.

Enrolment Requirements

Enrolment in the Specialist Program in Mathematics (all streams) is limited. Students may apply to enter the program after completing 4.0 credits, and must meet the requirements described below:

1. Students already admitted to the UTSC Year 1 Mathematics admissions category:

Required Courses:

Students must have passed the following CSC and MAT courses: CSCA08H3, [CSCA67H3 or MATA67H3], MATA22H3, MATA31H3, and MATA37H3.

Required Grades:

Students that meet all of the following requirements will be admitted to a Mathematics Specialist POSt* of their choice:
a. A cumulative grade point average (CGPA) of at least 2.5 over the following courses: CSC/MATA67H, MATA22H3, MATA31H3, and MATA37H3; and
b. A final grade of at least B in two of the following: CSC/MATA67H3, MATA22H3, and MATA37H3.

*Students must select one stream of the Mathematics Specialist.

2. Students admitted to other UTSC Year 1 admissions categories:

Students that have been admitted to other CMS admissions categories (Computer Science or Statistics) or any other of the UTSC Year 1 admissions categories are eligible to apply for a Mathematics Specialist POSt. Admission will be based on academic performance in the required A-level courses, identified above. The admission requirements change each year depending on available spaces and the pool of eligible applicants, and students are cautioned that there is no guarantee of admission; as such, students are strongly advised to plan to enroll in backup programs.

For more information about the admission requirements, please visit the following CMS webpage.

Program Requirements
The Program requirements consist of a core 15 courses (7.5 credits), common to all streams, and additional requirements that depend on the stream, for a total of 26-27 courses (13.0-13.5 credits).

The structure of the programs allows for easy switching between streams until relatively late. Consequently, these programs should not be viewed as rigidly separated channels feeding students to different career paths, but as a flexible structure that provides guidance to students in their course selection based on their broad (but possibly fluid) interests.

Core (7.5 credits)

1. Writing Requirement (0.5 credit)(*)
0.5 credits from the following: ANTA01H3, ANTA02H3, CLAA06H3, (CTLA19H3), CTLA01H3, ENGA10H3, ENGA11H3, ENGB06H3, ENGB07H3, ENGB08H3, ENGB09H3, ENGB17H3, ENGB19H3, ENGB50H3, (ENGB51H3), GGRA02H3, GGRA03H3, GGRB05H3, (GGRB06H3), (HISA01H3), (HLTA01H3), ACMA01H3, (HUMA01H3), (HUMA11H3), (HUMA17H3), (LGGA99H3), LINA01H3, PHLA10H3, WSTA01H3.
(*) It is recommended that this requirement be satisfied by the end of the second year.

2. A-level courses (2.5 credits)
CSCA08H3 Introduction to Computer Science I
MATA22H3 Linear Algebra I for Mathematical Sciences
MATA31H3 Calculus I for Mathematical Sciences
MATA37H3 Calculus II for Mathematical Sciences
[MATA67H3 or CSCA67H3 Discrete Mathematics]

3. B-level courses (3.5 credits)
MATB24H3 Linear Algebra II
MATB41H3 Techniques of the Calculus of Several Variables I
MATB42H3 Techniques of the Calculus of Several Variables II
MATB43H3 Introduction to Analysis
MATB44H3 Differential Equations I
STAB52H3 Introduction to Probability (**)
STAB57H3 Introduction to Statistics (**)
(**) This course may be taken after the second year, except for the Statistics stream.

4. C-level courses (1.0 credit)

MATC01H3 Groups and Symmetry
MATC34H3 Complex Variables

Teaching Stream
This stream requires a total of 26 courses (13.0 credits). In addition to the core requirements 1-4 common to all streams, 11 other distinct courses must be chosen, satisfying all of the following requirements:

5. Algebra, analysis, and geometry (1.5 credits):
1.5 credits from the following:
MATC15H3 Introduction to Number Theory
MATD01H3 Fields and Groups
MATD02H3 Classical Plane Geometries and their Transformations
MATD35H3 Introduction to Discrete Dynamical Systems
MATD46H3 Partial Differential Equations

6. Discrete mathematics (0.5 credit):
0.5 credit from the following:
MATC32H3 Graph Theory and Algorithms for its Applications
MATC44H3 Introduction to Combinatorics
MATD44H3 Topics in Combinatorics

7. MAT electives (1.5 credits):
1.5 credits of any C- or D-level MAT courses

8. MAT/STA/CSC electives (2.0 credits):
2.0 credits of any C- or D-level MAT, STA, CSC courses, excluding STAC32H3, STAC53H3 and STAD29H3
It is recommended that students obtain a TA-ship within the Department of Computer and Mathematical Sciences.

Calendar Section: Mathematics

SPECIALIST PROGRAM IN MEDICINAL AND BIOLOGICAL CHEMISTRY (SCIENCE) - SCSPE1995

For an updated list of Program Supervisors, please visit the Chemistry website.

Chemistry is an integral component of medical science, and fundamentally impacts key aspects of modern medicine, including diagnosis, prevention, treatment, and understanding of diseases. The Medicinal & Biological Chemistry program is intended for students who want to specialize in chemistry, and in particular, its applications to medicine and broader scientific areas related to human health. The first year of the program emphasizes learning fundamentals across various disciplines, including biology, chemistry, physics, and math. In the second year, additional coursework helps students to build the fundamental connection between chemistry and human health. In their third and fourth years, students will explore more specific topics related to medicinal and biological applications, such as drug development and chemical technologies in diagnosis. In their fourth year, students will have the opportunity to contribute to the creation of scientific knowledge in this field by participating in a directed research project. The combination of coursework and research experience makes this program ideally suited for students who wish to pursue graduate studies in medicinal, pharmaceutical and biological chemistry or a related discipline, or to work in health-related industries. It is also excellent preparation for students wishing to pursue professional schools such as medicine, pharmacy or law.

Enrolment Requirements
Students may apply to this program after completing at least 4.0 credits including: BIOA01H3, BIOA02H3, CHMA10H3, [CHMA11H3 or CHMA12H3], [MATA29H3 or MATA30H3] and [PHYA10H3 or PHYA11H3] with a cumulative grade point average (CGPA) of at least 2.0. Application for admission to the program is made to the registrar through ROSI in April/May and July/August. See the UTSC Office of the Registrar's website for information on the program (Subject POSt) selection.

Program Requirements
The program requires the completion of the following 14.5-15.0 credits:

First Year (4.0 credits):
BIOA01H3 Life On Earth: Unifying Principles
BIOA02H3 Life on Earth: Form, Function and Interactions
CHMA10H3 Introductory Chemistry I: Structure and Bonding

[CHMA11H3 Introductory Chemistry II: Reactions and Mechanisms *or* CHMA12H3 Advanced General Chemistry]
[MATA29H3 Calculus I for Life Sciences *or* MATA30H3 Calculus I for Physical Sciences]
[MATA35H3 Calculus II for Biological Sciences *or* MATA36H3 Calculus II for Physical Sciences]
[PHYA10H3 Physics I for the Physical Sciences *or* PHYA11H3 Physics I for Life Sciences]
STAB22H3 Introduction to Statistics

Second Year (4.5 credits):
BIOB10H3 Cell Biology
BIOB11H3 Molecular Aspect of Cellular and Genetic Processes
BIOB12H3 Laboratory for Cell and Molecular Biology
CHMB16H3 Techniques in Analytical Chemistry
CHMB21H3 Chemical Structure and Spectroscopy
CHMB23H3 Introduction to Chemical Thermodynamics and Kinetics: Theory and Practice
CHMB31H3 Introduction to Inorganic Chemistry
CHMB41H3 Organic Chemistry I
CHMB42H3 Organic Chemistry II

Third Year (4.0-4.5 credits):
BIOC12H3 Biochemistry I: Proteins and Enzymes
BIOC13H3 Biochemistry II: Bioenergetics and Metabolism
BIOC23H3 Practical Approaches to Biochemistry
CHMC11H3 Principles of Analytical Instrumentation
CHMC42H3 Organic Synthesis
CHMC47H3 Bio-Organic Chemistry
CHMC71H3/(CHMD71H3) Medicinal Chemistry
and
0.5 credit from:
CHMC16H3 Analytical Instrumentation
CHMC21H3 Topics in Biophysical Chemistry
CHMC31Y3 Intermediate Inorganic Chemistry

Fourth Year (2.0 credits):
CHMD79H3 Topics in Biological Chemistry
1.5 credits in D-level CHM courses
including
0.5-1.0 credits from the following:
CHMD90Y3 Directed Research
CHMD91H3 Directed Research
CHMD92H3 Advanced Chemistry Laboratory Course
and
0.5 credit from the following:
CHMD41H3/(CHMC41H3) Physical Organic Chemistry
CHMD47H3 Advanced Bio-Organic Chemistry
CHMD69H3 Chemical Elements in Living Systems

Calendar Section: Chemistry

SPECIALIST PROGRAM IN MENTAL HEALTH STUDIES (SCIENCE) - SCSPE1160M

Enrolment Requirements

Enrolment in the Program is limited. Admission will require:
(a.) completion of any Grade 12 U/M high school math course or equivalent (or successful completion of the UTSC Online Mathematics Preparedness Course or equivalent), and
(b.) completion of Grade 12 U/M high school biology or equivalent (or BIOA11H3 or equivalent), and
(c.) completion of a minimum of 4.0 credits, including 1.0 credit in Psychology, and
(d.) either (1) a final grade of 75% or higher in both PSYA01H3 and PSYA02H3, or (2) a final grade of 64% or higher in both PSYA01H3 and PSYA02H3, and a final grade of 72% or higher in [PSYB70H3 or (PSYB01H3)] and [PSYB07H3 or equivalent].

Application for admission will be made to the Office of the Registrar through ACORN, during the Limited Program application

periods. For more information on applying to limited enrolment programs, please visit the Office of the Registrar website.

Program Requirements
The program requires completion of 12.5 credits as follows, including at least 4.0 credits at the C- or D-level, of which at least 1.0 must be at the D-level:

1. Introductory Psychology (1.0 credit)
PSYA01H3 Introduction to Biological and Cognitive Psychology
PSYA02H3 Introduction to Clinical, Developmental, Personality and Social Psychology

2. Laboratory Methods (1.5 credit)
[PSYB70H3 Methods in Psychological Science *or* (PSYB01H3) Psychological Research Laboratory]
PSYC37H3 Psychological Assessment
PSYC70H3 Advanced Research Methods Laboratory

3. Statistical Methods (1.0 credit)
PSYB07H3 Data Analysis in Psychology
[PSYC08H3 Advanced Data Analysis in Psychology *or* PSYC09H3 Applied Multiple Regression in Psychology]

4. PSYC02H3 Scientific Communication in Psychology (0.5 credit)

5. PSYC85H3 History of Psychology (0.5 credit)

6. Personality and Clinical Psychology (1.0 credit):
PSYB30H3 Introduction to Personality
PSYB32H3 Introduction to Clinical Psychology

7. Psychosocial and Psychobiological Breadth (3.0 credits)
Students are required to take 2.0 credits from one group and 1.0 credit from the other group:

Psycho-Social Grouping
PSYB38H3/(PSYB45H3) Introduction to Behaviour Modification
PSYC15H3 Foundations in Community Psychology
PSYC17H3 Meeting Minds: The Psychology of Interpersonal Interactions
PSYC18H3 The Psychology of Emotion
PSYC30H3/(PSYC35H3) Advanced Personality Psychology
PSYC34H3 Happiness and Meaning
PSYC36H3 Psychotherapy
PSYC39H3 Psychology and the Law

Psycho-Biological Grouping
[PSYB55H3 Introduction to Cognitive Neuroscience *or* (PSYB65H3) Human Brain and Behaviour]
PSYB64H3 Introduction to Behavioural Neuroscience
PSYC31H3 Neuropsychological Assessment
(PSYC33H3) Neuropsychological Rehabilitation
PSYC38H3 Adult Psychopathology
PSYC62H3 Drugs and the Brain

8. Seminars in Psychology at the D-level (1.0 credit):
All PSY D-level courses are considered "seminars", with the exception of PSYD98Y3. Students must take 1.0 credit of seminars in Psychology at the D-level, of which 0.5 credit must come from the PSY D30-series:
PSYD30H3 Current topics in Personality Psychology
PSYD31H3 Cultural-Clinical Psychology
PSYD32H3 Personality Disorders
PSYD33H3 Current Topics in Clinical Psychology
PSYD35H3 Clinical Psychopharmacology
PSYD37H3 Social Context of Mental Health and Illness
PSYD39H3 Cognitive Behavioural Therapy

9. Additional credits in Psychology at the B-level or higher (1.0 credits)

10. 2.0 credits from the following courses:
BIOC70H3 An Introduction to Bias in the Sciences
HLTA91H3 A Healthy Campus for Students: Prioritizing Mental Health
HLTB40H3 Health Policy and Health Systems
HLTB41H3 Introduction to the Social Determinants of Health
HLTB42H3 Perspectives of Culture, Illness and Healing
HLTB50H3 Introduction to Health Humanities
HLTC22H3 Health, Aging, and the Life Cycle
HLTC23H3 Issues in Child Health and Development

HLTC42H3 Emerging Health Issues and Policy Needs
HLTC49H3 Indigenous Health
IDSB04H3 Introduction to International/Global Health
IDSC11H3 Issues in Global and International Health
LINB20H3 Sociolinguistics
PHLA11H3 Introduction to Ethics
PHLB07H3 Ethics
PHLB09H3 Biomedical Ethics
PHLB81H3 Theories of Mind
PHLC07H3 Death and Dying
PHLC10H3 Topics in Bioethics
SOCB22H3 Sociology of Gender
SOCB49H3 Sociology of Family
SOCB50H3 Deviance and Normality I
SOCC49H3 Indigenous Health

Calendar Section: Psychology

SPECIALIST PROGRAM IN MOLECULAR BIOLOGY AND BIOTECHNOLOGY (SCIENCE) - SCSPE1203

Supervisor Email: molecular-biology-biotechnology@utsc.utoronto.ca

The Molecular Biology and Biotechnology program strives to help students construct a broad foundation of knowledge across the major disciplines of biology in the first two years of study, and combines this knowledge with an increasingly analytical and reflective approach to learning. Upon this base, students deepen their knowledge of biological processes that occur at the cellular and molecular level through the course work of their third and fourth years. This is a laboratory-rich program that integrates an understanding of chemical and physical processes with our complex biological systems. Because of broad training in biology and rigorous cross-training in cognate disciplines, graduates are well-positioned to apply to professional and graduate schools or work in a broad range of government regulatory agencies, clinical or research-focused industries and other careers that require the union of strong analytical and technical skills.
Note: This program was formerly known as the Specialist in Cell and Molecular Biology (BSc).

Enrolment Requirements
Students apply to the Specialist Program in Molecular Biology and Biotechnology after completing a minimum of 4.0 credits, including 1.0 credit in Biology (excluding BIOA11H3), 1.0 credit in Chemistry, and 0.5 credit in Mathematics (excluding MATA02H3) or Statistics and with a minimum cumulative grade point average (CGPA) of at least 2.0.

Application for admission is made to the Office of the Registrar through ACORN, in April/May and July/August. See the UTSC Office of the Registrar's website for more information on program selection.

Program Requirements
This program consists of 14.5 required credits.

First Year
1. 1.0 Credit of Introductory Biology Courses
BIOA01H3 Life on Earth: Unifying Principles
BIOA02H3 Life on Earth: Form, Function and Interactions

2. 1.0 Credit of Introductory Chemistry Courses
CHMA10H3 Introductory Chemistry I: Structure and Bonding
[CHMA11H3 Introductory Chemistry II: Reactions and Mechanisms or CHMA12H3 General Chemistry]

3. 1.0 Credit in Mathematics
Choose from:
[MATA29H3 Calculus I for the Life Sciences or MATA30H3 Calculus I for Physical Sciences]
and
[MATA35H3 Calculus II for Biological Sciences or MATA36H3 Calculus II for Physical Sciences]

4. 1.0 Credit in Physics

[PHYA10H3 Physics I for the Physical Sciences or PHYA11H3 Physics I for the Life Sciences]
[PHYA21H3 Physics II for the Physical Sciences or PHYA22H3 Physics II for the Life Sciences]
and
0.5 Credit in Statistics
Choose from:
STAB22H3 Statistics I (this course could also be taken in the second year)
PSYB07H3 Data Analysis in Psychology (this course could also be taken in the second year)

Second Year
5. 3.0 Credits of Biology Core Courses
BIOB10H3 Cell Biology
BIOB11H3 Molecular Aspects of Cellular and Genetic Processes
BIOB34H3 Animal Physiology
BIOB38H3 Plants and Society
BIOB50H3 Ecology
BIOB51H3 Evolutionary Biology
BIOB90H3 Integrative Research Poster Project (CR/NCR 0.0 credit)*
***Note**: Completion of BIOB90H3 is a graduation requirement for students in this program. Concurrent enrolment in at least one of the BIO B-level courses listed above is required for enrolment in BIOB90H3. Please see BIOB90H3 in the Calendar for important information.

6. 0.5 Credit of Biology Core Labs
BIOB12H3 Cell and Molecular Biology Laboratory

7. 1.0 Credit of Organic Chemistry Courses
CHMB41H3 Organic Chemistry I
CHMB42H3 Organic Chemistry II

Third Year
8. 3.5 Credits of Biology C-level Courses
BIOC12H3 Biochemistry I: Proteins & Enzymes
BIOC13H3 Biochemistry II: Bioenergetics and Metabolism
BIOC15H3 Genetics
BIOC17H3 Microbiology
BIOC20H3 Principles of Virology
BIOC23H3 Practical Approaches to Biochemistry
BIOC39H3 Immunology (can be completed in third or fourth year)

9. 0.5 Credit in Computer Science
Choose from:
CSCA08H3 Introduction to Computer Science I (most appropriate course for computer science students)
CSCA20H3 Introduction to Programming (most appropriate course for non-computer science students)
(computer science could also be taken in an earlier year)

Third/Fourth Year
10. 0.5 Credit of Cognate Biology Courses
Choose from:
BIOC10H3 Cell Biology: Proteins from Life to Death
BIOC14H3 Genes, Environment and Behaviour
BIOC19H3 Animal Developmental Biology
BIOC21H3 Vertebrate Histology: Cells and Tissues
BIOC31H3 Plant Development and Biotechnology
BIOC35H3 Principles of Parasitology
BIOC40H3 Plant Physiology
BIOC70H3 An Introduction to Bias in the Sciences
BIOD37H3 Biology of Plant Stress
BIOC90H3 Integrative Multimedia Documentary Project (CR/NCR 0.0 credit)*
***Note**: Completion of BIOC90H3 is a graduation requirement for students in this program. Concurrent enrolment in one of the participating BIO C-level courses is required for enrolment in BIOC90H3. Please see BIOC90H3 in the Calendar for important information.

Fourth Year
11. 0.5 Credit in Advanced Molecular Techniques
BIOD21H3 Advanced Molecular Biology Laboratory

12. 0.5 credit of D-level Research-oriented "Cell & Molecular" Course Work
Choose from:
BIOD12H3 Protein Homeostasis

BIOD13H3 Herbology: The Science Behind Medicinal Plants
BIOD15H3 Mechanisms of Gene Regulation in Health and Disease
BIOD17H3 Seminars in Cellular Microbiology
BIOD19H3 Epigenetics in Health and Disease
BIOD20H3 Special Topics in Virology
BIOD22H3 Molecular Biology of the Stress Response
BIOD23H3 Special Topics in Cell Biology
BIOD24H3 Human Stem Cell Biology and Regenerative Medicine
BIOD25H3 Genomics
BIOD26H3 Fungal Biology and Pathogenesis
BIOD27H3 Vertebrate Endocrinology
BIOD29H3 Pathobiology of Human Disease
BIOD30H3 Plant Research and Biotechnology: Addressing Global Problems
BIOD95H3 Supervised Study in Biology
BIOD98Y3 Directed Research in Biology
Note: Any of these courses not used to satisfy this requirement may be used to fulfill the '0.5 Credit of Cognate Biology Courses'.

Calendar Section: Biological Sciences

SPECIALIST PROGRAM IN NEUROSCIENCE - Cellular/Molecular Stream (SCIENCE) - SCSPE1272

The Specialist program in Neuroscience is a research-intensive program designed to provide students with strong breadth in the major domains of neuroscience. The **Cellular/Molecular** stream explores the nervous system at its most fundamental level, investigating the influence of genes, signaling molecules, and cellular morphology on the development and maintenance of brain function, predominantly through the use of *in vitro* techniques (e.g., immunohistochemistry, patch clamp).

Enrolment in the Program is limited, and takes place in two stages.

Stage 1:
Students may apply to Stage 1 after successfully completing a minimum of 4.0 credits, including the following courses: BIOA01H3, BIOA02H3, CHMA10H3, [CHMA11H3 or CHMA12H3], PSYA01H3, and PSYA02H3. Students must have a CGPA of 2.75 or higher to be admitted to the program. Application for admission will be made to the Office of the Registrar through ACORN, during the Limited Program application periods. When applying, note that the Subject POSt code for Stage 1 is **SCSPE1072**. For more information on applying to limited enrolment programs, please visit the Office of the Registrar website.

Stage 2:
To complete the program, students must choose one of the three available streams. Students who have successfully met the enrolment requirements of their chosen stream will be admitted to the Specialist Neuroscience Stage 2 category. Applications for admission to a Stage 2 stream will be made to the Office of the Registrar through ACORN, during the Limited Program application periods.

Before applying to their chosen stream, students must:

1. Complete a minimum of 10.0 credits including all Stage 1 course requirements, [MATA29H3 or MATA30H3], and the Neuroscience Foundations courses which include BIOB10H3, NROB60H3, NROB61H3, [PSYB07H3 or STAB22H3], PSYB55H3, PSYB70H3;

2. Complete 1.0 credit in Stream Foundations courses from the following list*:
BIOB11H3 Molecular Aspects of Cellular and Genetic Processes
CSCA20H3 Introduction to Programming
CHMB41H3 Organic Chemistry I
CHMB42H3 Organic Chemistry II
MATA23H3 Linear Algebra
[PHYA10H3 Physics I for the Physical Sciences or PHYA11H3 Physics I for the Life Sciences]
PSYB51H3 Introduction to Perception
PSYC08H3 Advanced Data Analysis in Psychology
PSYC09H3 Applied Multiple Regression in Psychology

*__Notes:__
(i) students are advised to exercise caution when selecting these courses since some can be applied to all three streams (BIOB11H3, CHMB41H3, PSYB51H3, PSYC08H3), but others can be applied to only one or two streams;
(ii) the Cognitive stream does not include a component called "Stream-specific electives"; students interested in this stream should select from the following: MATA23H3, BIOB11H3, CHMB41H3, PSYB51H3, [PSYC08H3 or PSYC09H3].

3. Have achieved a CGPA of 2.5 or higher.

Students who do not meet the Stage 1 enrolment requirements can still apply to the Specialist program at Stage 2. This pathway requires students to complete a minimum of 10.0 credits, including all of the core courses of the program (Scientific Foundations, Neuroscience Foundations, and Stream Foundations). In addition to completing the course requirements, students must also have achieved a CGPA of 2.5 or higher across all courses, and a CGPA of 2.75 or higher across the Neuroscience Foundations and Stream Foundations courses. Application for admission to a Stage 2 stream will be made to the Office of the Registrar through ACORN, during the Limited Program application periods. Admission through this route is dependent upon the availability of space in the program.

Program Requirements
This program requires students to complete 6.5 credits in core courses that are common to all streams. Students will complete a further 6.5 credits, specific to the Cellular/Molecular stream, for a total of 13.0 credits.

CORE (6.5 credits)

1. Scientific Foundations (3.5 credits):
BIOA01H3 Life on Earth: Unifying Principles
BIOA02H3 Life on Earth: Form, Function and Interactions
CHMA10H3 Introductory Chemistry I: Structure and Bonding
[CHMA11H3 Introductory Chemistry II: Reactions and Mechanisms or CHMA12H3 Advanced General Chemistry]
[MATA29H3 Calculus I for the Life Sciences *or* MATA30H3 Calculus I for Physical Sciences]
PSYA01H3 Introduction to Biological and Cognitive Psychology
PSYA02H3 Introduction to Clinical, Developmental, Personality and Social Psychology

2. Neuroscience Foundations (3.0 credits):
BIOB10H3 Cell Biology
NROB60H3 Neuroanatomy Laboratory
NROB61H3 Neurophysiology
PSYB55H3 Introduction to Cognitive Neuroscience
[PSYB07H3 Data Analysis in Psychology or STAB22H3 Statistics I]
PSYB70H3 Methods in Psychological Science

CELLULAR/MOLECULAR STREAM (6.5 credits)

3. Quantitative Logic and Reasoning (1.0 credit):
PSYC08H3 Advanced Data Analysis in Psychology
and one of the following:
CSCA20H3 Introduction to Programming
[PHYA10H3 Physics I for the Physical Sciences or PHYA11H3 Physics I for the Life Sciences]

4. Advanced Foundations (2.0 credits)
BIOB11H3 Molecular Aspects of Cellular and Genetic Processes
CHMB41H3 Organic Chemistry I
NROC36H3 Molecular Neuroscience
NROC69H3 Synaptic Organization & Physiology of the Brain

5. Stream-specific electives (1.0 credit)
two of the following:
BIOC12H3 Biochemistry I: Proteins & Enzymes
BIOC13H3 Biochemistry II: Bioenergetics & Metabolism
BIOC14H3 Genes, Environment and Behaviour
CHMB42H3 Organic Chemistry II
NROC34H3 Neuroethology
NROC61H3 Learning and Motivation
NROC64H3 Sensorimotor Systems
PSYC62H3 Drugs and the Brain

6. Breadth in Neuroscience (1.0 credit):
two of the following:

NROC34H3* Neuroethology
NROC61H3* Learning and Motivation
NROC64H3* Sensorimotor Systems
PSYB51H3 Introduction to Perception
PSYC51H3 Cognitive Neuroscience of Vision
PSYC52H3 Cognitive Neuroscience of Attention
PSYC53H3 Cognitive Neuroscience of Memory
PSYC54H3 Auditory Cognitive Neuroscience
PSYC57H3 Cognitive Neuroscience of Decision Making
PSYC59H3 Cognitive Neuroscience of Language
**only if not used to complete component 5 of the requirements*

7. Laboratory Course (0.5 credit):
one of the following:
BIOB12H3 Cell and Molecular Biology Laboratory
NROC60H3 Cellular Neuroscience Laboratory (recommended)
NROC63H3 Behavioural Neuroscience Laboratory
NROC90H3 Supervised Study in Neuroscience
NROC93H3 Supervised Study in Neuroscience

8. Capstone Courses (1.0 credit):
two of the following:
BIOD06H3 Advanced Topics in Neural Basis of Motor Control
BIOD07H3 Advanced Topics and Methods in Neural Circuit Analysis
BIOD19H3 Epigenetics in Health and Disease
BIOD65H3 Pathologies of the Nervous System
NROD08H3/BIOD08H3 Theoretical Neuroscience
NROD60H3 Current Topics in Neuroscience
NROD61H3 Emotional Learning Circuits
NROD66H3 Drug Addiction
NROD67H3 Neuroscience of Aging
NROD98Y3 Thesis in Neuroscience*
PSYD66H3 Current Topics in Human Brain & Behaviour
**Note: only 0.5 credit of NROD98Y3 can be counted towards the Capstone course requirement*

Calendar Section: Neuroscience

SPECIALIST PROGRAM IN NEUROSCIENCE - Cognitive Stream (SCIENCE) - SCSPE1172

The Specialist program in Neuroscience is a research-intensive program designed to provide students with strong breadth in the major domains of neuroscience. The **Cognitive** stream focuses on understanding the neural basis of human cognition (e.g., language, memory, attention, decision-making) predominantly through the use of patient neuropsychology and neuroimaging techniques (e.g., magnetic resonance imaging (MRI), electroencephalography (EEG)).

Enrolment in the Program is limited, and takes place in two stages.

Stage 1:
Students may apply to Stage 1 after successfully completing a minimum of 4.0 credits, including the following courses: BIOA01H3, BIOA02H3, CHMA10H3, [CHMA11H3 or CHMA12H3], PSYA01H3, and PSYA02H3. Students must have a CGPA of 2.75 or higher to be admitted to the program. Application for admission will be made to the Office of the Registrar through ACORN, during the Limited Program application periods. When applying, note that the Subject POSt code for Stage 1 is **SCSPE1072**. For more information on applying to limited enrolment programs, please visit the Office of the Registrar website.

Stage 2:
To complete the program, students must choose one of the three available streams. Students who have successfully met the enrolment requirements of their chosen stream will be admitted to the Specialist Neuroscience Stage 2 category. Applications for admission to a Stage 2 stream will be made to the Office of the Registrar through ACORN, during the Limited Program application periods.

Before applying to their chosen stream, students must:

1. Complete a minimum of 10.0 credits including all Stage 1 course requirements, [MATA29H3 or MATA30H3], and the Neuroscience Foundations courses which include BIOB10H3, NROB60H3, NROB61H3, [PSYB07H3 or STAB22H3], PSYB55H3, PSYB70H3;

2. Complete 1.0 credit in Stream Foundations courses from the following list*:
BIOB11H3 Molecular Aspects of Cellular and Genetic Processes
CSCA20H3 Introduction to Programming
CHMB41H3 Organic Chemistry I
CHMB42H3 Organic Chemistry II
MATA23H3 Linear Algebra
[PHYA10H3 Physics I for the Physical Sciences or PHYA11H3 Physics I for the Life Sciences]
PSYB51H3 Introduction to Perception
PSYC08H3 Advanced Data Analysis in Psychology
PSYC09H3 Applied Multiple Regression in Psychology

***Notes:**
(i) students are advised to exercise caution when selecting these courses since some can be applied to all three streams (BIOB11H3, CHMB41H3, PSYB51H3, PSYC08H3), but others can be applied to only one or two streams;
(ii) the Cognitive stream does not include a component called "Stream-specific electives"; students interested in this stream should select from the following: MATA23H3, BIOB11H3, CHMB41H3, PSYB51H3, [PSYC08H3 or PSYC09H3].

3. Have achieved a CGPA of 2.5 or higher.

Students who do not meet the Stage 1 enrolment requirements can still apply to the Specialist program at Stage 2. This pathway requires students to complete a minimum of 10.0 credits, including all of the core courses of the program (Scientific Foundations, Neuroscience Foundations, and Stream Foundations). In addition to completing the course requirements, students must also have achieved a CGPA of 2.5 or higher across all courses, and a CGPA of 2.75 or higher across the Neuroscience Foundations and Stream Foundations courses. Application for admission to a Stage 2 stream will be made to the Office of the Registrar through ACORN, during the Limited Program application periods. Admission through this route is dependent upon the availability of space in the program.

Program Requirements
This program requires students to complete 6.5 credits in core courses that are common to all streams. Students will complete a further 7.0 credits, specific to the Cognitive stream, for a total of 13.5 credits.

CORE (6.5 credits)

1. Scientific Foundations (3.5 credits):
BIOA01H3 Life on Earth: Unifying Principles
BIOA02H3 Life on Earth: Form, Function and Interactions
CHMA10H3 Introductory Chemistry I: Structure and Bonding
[CHMA11H3 Introductory Chemistry II: Reactions and Mechanisms or CHMA12H3 Advanced General Chemistry]
[MATA29H3 Calculus I for the Life Sciences *or* MATA30H3 Calculus I for Physical Sciences]
PSYA01H3 Introduction to Biological and Cognitive Psychology
PSYA02H3 Introduction to Clinical, Developmental, Personality and Social Psychology

2. Neuroscience Foundations (3.0 credits):
BIOB10H3 Cell Biology
NROB60H3 Neuroanatomy Laboratory
NROB61H3 Neurophysiology
PSYB55H3 Introduction to Cognitive Neuroscience
[PSYB07H3 Data Analysis in Psychology or STAB22H3 Statistics I]
PSYB70H3 Methods in Psychological Science

COGNITIVE STREAM (7.0 credits)

3. Quantitative and Methodological Skills (1.5 credits):
PSYC02H3 Scientific Communication in Psychology
PSYC70H3 Advanced Research Methods Laboratory
[PSYC08H3 Advanced Data Analysis in Psychology or PSYC09H3 Applied Multiple Regression in Psychology]

4. Advanced Programming (1.5 credits)
MATA23H3 Linear Algebra
[[CSCA08H3 Introduction to Computer Science I and CSCA48H3 Introduction to Computer Science II]* *or* [PSYB03H3 Introduction to Computers in Psychological Research and PSYC03H3 Introduction to Computers in Psychological Research: Advanced Topics]]

*Note: students are strongly advised to choose the [PSYB03H3 and PSYC03H3] pairing.

5. Advanced Foundations (1.5 credits)
PSYB51H3 Introduction to Perception
and two of the following:
PSYC51H3 Cognitive Neuroscience of Vision
PSYC52H3 Cognitive Neuroscience of Attention
PSYC53H3 Cognitive Neuroscience of Memory
PSYC54H3 Auditory Cognitive Neuroscience
PSYC57H3 Cognitive Neuroscience of Decision Making
PSYC59H3 Cognitive Neuroscience of Language

6. Breadth in Neuroscience (1.0 credit):
two of the following (at least 0.5 credit must be a C-level NRO course):
BIOB11H3 Molecular Aspects of Cellular and Genetic Processes
CHMB41H3 Organic Chemistry I
NROC34H3 Neuroethology
NROC36H3 Molecular Neuroscience
NROC61H3 Learning and Motivation
NROC64H3 Sensorimotor Systems
NROC69H3 Synaptic Organization & Physiology of the Brain

7. Laboratory Course (0.5 credit):
one of the following:
NROC90H3 Supervised Study in Neuroscience
NROC93H3 Supervised Study in Neuroscience
PSYC75H3 Cognitive Psychology Laboratory
PSYC76H3 Brain Imaging Laboratory

8. Capstone Courses (1.0 credit):
two of the following:
PSYD17H3 Social Neuroscience
PSYD50H3 Current Topics in Memory and Cognition
PSYD51H3 Current Topics in Perception
PSYD54H3 Current Topics in Visual Recognition
PSYD55H3 Functional Magnetic Resonance Imaging Laboratory
PSYD62H3 Neuroscience of Pleasure and Reward
PSYD66H3 Current Topics in Human Brain & Behaviour
NROD98Y3 Thesis in Neuroscience*
**Note: only 0.5 credit of NROD98Y3 can be counted towards the Capstone course requirement*

Calendar Section: Neuroscience

SPECIALIST PROGRAM IN NEUROSCIENCE - Systems/Behavioural Stream (SCIENCE) - SCSPE1372

The Specialist program in Neuroscience is a research-intensive program designed to provide students with strong breadth in the major domains of neuroscience. The **Systems/Behavioural** stream examines the neural mechanisms underlying behaviour and how brain circuits work together to analyze external stimuli, internal biological states, and past experiences in order to coordinate appropriate responses, predominantly through the use of *in vivo* approaches in behaving subjects (e.g., optogenetics, chemogenetics).

Enrolment in the Program is limited, and takes place in two stages.

Stage 1:
Students may apply to Stage 1 after successfully completing a minimum of 4.0 credits, including the following courses: BIOA01H3, BIOA02H3, CHMA10H3, [CHMA11H3 or CHMA12H3], PSYA01H3, and PSYA02H3. Students must have a CGPA of 2.75 or higher to be admitted to the program. Application for admission will be made to the Office of the Registrar through ACORN, during the Limited Program application periods. When applying, note that the Subject POSt code for Stage 1 is **SCSPE1072**. For more information on applying to limited enrolment programs, please visit the Office of the Registrar website.

Stage 2:
To complete the program, students must choose one of the three available streams. Students who have successfully met the enrolment requirements of their chosen stream will be admitted to the Specialist Neuroscience Stage 2 category. Applications for admission to a Stage 2 stream will be made to the Office of the Registrar through ACORN, during the Limited Program application periods.

Before applying to their chosen stream, students must:

1. Complete a minimum of 10.0 credits including all Stage 1 course requirements, [MATA29H3 or MATA30H3], and the Neuroscience Foundations courses which include BIOB10H3, NROB60H3, NROB61H3, [PSYB07H3 or STAB22H3], PSYB55H3, PSYB70H3;

2. Complete 1.0 credit in Stream Foundations courses from the following list*:
BIOB11H3 Molecular Aspects of Cellular and Genetic Processes
CSCA20H3 Introduction to Programming
CHMB41H3 Organic Chemistry I
CHMB42H3 Organic Chemistry II
MATA23H3 Linear Algebra
[PHYA10H3 Physics I for the Physical Sciences or PHYA11H3 Physics I for the Life Sciences]
PSYB51H3 Introduction to Perception
PSYC08H3 Advanced Data Analysis in Psychology
PSYC09H3 Applied Multiple Regression in Psychology

***Notes:**
(i) students are advised to exercise caution when selecting these courses since some can be applied to all three streams (BIOB11H3, CHMB41H3, PSYB51H3, PSYC08H3), but others can be applied to only one or two streams;
(ii) the Cognitive stream does not include a component called "Stream-specific electives"; students interested in this stream should select from the following: MATA23H3, BIOB11H3, CHMB41H3, PSYB51H3, [PSYC08H3 or PSYC09H3].

3. Have achieved a CGPA of 2.5 or higher.

Students who do not meet the Stage 1 enrolment requirements can still apply to the Specialist program at Stage 2. This pathway requires students to complete a minimum of 10.0 credits, including all of the core courses of the program (Scientific Foundations, Neuroscience Foundations, and Stream Foundations). In addition to completing the course requirements, students must also have achieved a CGPA of 2.5 or higher across all courses, and a CGPA of 2.75 or higher across the Neuroscience Foundations and Stream Foundations courses. Application for admission to a Stage 2 stream will be made to the Office of the Registrar through ACORN, during the Limited Program application periods. Admission through this route is dependent upon the availability of space in the program.

Program Requirements
This program requires students to complete 6.5 credits in core courses that are common to all streams. Students will complete a further 6.5 credits, specific to the Systems/Behavioural stream, for a total of 13.0 credits.

CORE (6.5 credits)

1. Scientific Foundations (3.5 credits):
BIOA01H3 Life on Earth: Unifying Principles
BIOA02H3 Life on Earth: Form, Function and Interactions
CHMA10H3 Introductory Chemistry I: Structure and Bonding
[CHMA11H3 Introductory Chemistry II: Reactions and Mechanisms or CHMA12H3 Advanced General Chemistry]
[MATA29H3 Calculus I for the Life Sciences *or* MATA30H3 Calculus I for Physical Sciences]
PSYA01H3 Introduction to Biological and Cognitive Psychology
PSYA02H3 Introduction to Clinical, Developmental, Personality and Social Psychology

2. Neuroscience Foundations (3.0 credits):
BIOB10H3 Cell Biology
NROB60H3 Neuroanatomy Laboratory
NROB61H3 Neurophysiology
PSYB55H3 Introduction to Cognitive Neuroscience
[PSYB07H3 Data Analysis in Psychology or STAB22H3 Statistics I]
PSYB70H3 Methods in Psychological Science

SYSTEMS/BEHAVIOURAL STREAM (6.5 credits)

3. Quantitative Logic and Reasoning (1.0 credit):
PSYC08H3 Advanced Data Analysis in Psychology
and one of the following:

CSCA20H3 Introduction to Programming
[PHYA10H3 Physics I for the Physical Sciences or PHYA11H3 Physics I for the Life Sciences]

4. Advanced Foundations (2.0 credits)
BIOB11H3 Molecular Aspects of Cellular and Genetic Processes
NROC61H3 Learning and Motivation
and two of the following:
NROC34H3 Neuroethology
NROC64H3 Sensorimotor Systems
NROC69H3 Synaptic Organization & Physiology of the Brain

5. Stream-specific electives (1.0 credit)
two of the following:
BIOC14H3 Genes, Environment and Behaviour
CHMB41H3 Organic Chemistry I
CHMB42H3 Organic Chemistry II
NROC36H3 Molecular Neuroscience
PSYC62H3 Drugs and the Brain

6. Breadth in Neuroscience (1.0 credit):
two of the following:
CHMB41H3* Organic Chemistry I
NROC36H3* Molecular Neuroscience
NROC69H3* Synaptic Organization & Physiology of the Brain
PSYB51H3 Introduction to Perception
PSYC51H3 Cognitive Neuroscience of Vision
PSYC52H3 Cognitive Neuroscience of Attention
PSYC53H3 Cognitive Neuroscience of Memory
PSYC54H3 Auditory Cognitive Neuroscience
PSYC57H3 Cognitive Neuroscience of Decision Making
PSYC59H3 Cognitive Neuroscience of Language
**only if not used to complete components 4 or 5 of the requirements*

7. Laboratory Course (0.5 credit):
one of the following:
NROC60H3 Cellular Neuroscience Laboratory
NROC63H3 Behavioural Neuroscience Laboratory (recommended)
NROC90H3 Supervised Study in Neuroscience
NROC93H3 Supervised Study in Neuroscience
PSYC74H3 Human Movement Laboratory

8. Capstone Courses (1.0 credit):
two of the following:
BIOD06H3 Advanced Topics in Neural Basis of Motor Control
BIOD07H3 Advanced Topics and Methods in Neural Circuit Analysis
BIOD19H3 Epigenetics in Health and Disease
BIOD45H3 Animal Communication
BIOD65H3 Pathologies of the Nervous System
NROD08H3/BIOD08H3 Theoretical Neuroscience
NROD60H3 Current Topics in Neuroscience
NROD61H3 Emotional Learning Circuits
NROD66H3 Drug Addiction
NROD67H3 Neuroscience of Aging
NROD98Y3 Thesis in Neuroscience*
PSYD66H3 Current Topics in Human Brain & Behaviour
**Note: only 0.5 credit of NROD98Y3 can be counted towards the Capstone course requirement*

Calendar Section: Neuroscience

SPECIALIST PROGRAM IN PHILOSOPHY (ARTS) - SCSPE0231

Program Supervisor Email: philosophy-program-supervisor@utsc.utoronto.ca

Program Requirements
Students must complete at least 12.0 credits in Philosophy including PHLB50H3 Symbolic Logic I *or* PHLB55H3 Puzzles and Paradoxes, and at least 5.0 credits at the C- or D-level of which 1.0 must be at the D-level. MATC09H3 can be used as a Philosophy course for these purposes. Students are encouraged, though not required, to complete at least 0.5 credit as a reading course at the D-level.

Note: PHLB99H3 Philosophical Writing and Methodology, is strongly recommended for the Philosophy Specialist and Major programs and is important preparation for advanced C- and D-level studies in Philosophy.

Calendar Section: Philosophy

SPECIALIST PROGRAM IN PHYSICAL AND MATHEMATICAL SCIENCES (SCIENCE) - SCSPE1660

For a list of updated Program Supervisors, please visit the Physics and Astrophysics website.

This program provides a framework of courses in the Physical Sciences based upon a firm Mathematical foundation, relating Astronomy, Chemistry, Computer Science, Physics and Statistics. It prepares students for careers in teaching, industry, and government as well as for further studies at the graduate level.

Program Requirements
This program requires 15.5 credits as follows:

First Year:
CHMA10H3 Introductory Chemistry I: Structure and Bonding
CHMA11H3 Introductory Chemistry II: Reactions and Mechanisms
*[CSCA08H3 Introduction to Computer Science *or* CSCA20H3 Introduction to Programming]
[MATA30H3 Calculus I for Physical Sciences *or* MATA31H3 Calculus for Mathematical Sciences]
MATA22H3 Linear Algebra I for Mathematical Sciences
[MATA36H3 Calculus II for Physical Sciences *or* MATA37H3 Calculus II for Mathematical Sciences]
PHYA10H3 Physics I for the Physical Sciences
PHYA21H3 Physics II for the Physical Sciences

*The preferred and recommended course for this program is CSCA20H3. However, students planning to take upper-level Computer Science courses should take CSCA08H3 instead

Second Year
MATB24H3 Linear Algebra II
MATB41H3 Techniques of the Calculus of Several Variables I
MATB42H3 Techniques of the Calculus of Several Variables II
MATB44H3 Differential Equations
PHYB10H3 Intermediate Physics Laboratory I
PHYB56H3 Introduction to Quantum Physics
PHYB21H3 Electricity and Magnetism
PHYB52H3 Thermal Physics

Second or Third Year
ASTB23H3 Astrophysics of Stars, Galaxies and the Universe
CHMB20H3 Chemical Thermodynamics and Elementary Kinetics
CHMB21H3 Chemical Structure and Spectroscopy
MATB61H3 Linear Programming
PHYB54H3 Mechanics: From Oscillations to Chaos
PHYB57H3 Introduction to Scientific Computing
[STAB52H3 An Introduction to Probability *or* STAB53H3 Introduction to Applied Probability]

Third or Fourth Year
4.0 credits from the following:
ASTC25H3 Astrophysics of Planetary Systems
CSCC37H3 Introduction to Numerical Algorithms for Computational Mathematics
CSCD37H3 Analysis of Numerical Algorithms for Computational Mathematics
MATC34H3 Complex Variables
MATC46H3 Differential Equations II

PHYC11H3 Intermediate Physics Laboratory II
PHYC14H3 Introduction to Atmospheric Physics
PHYC50H3 Electromagnetic Theory
PHYC54H3 Classical Mechanics
PHYC56H3 Quantum Mechanics I
[PHYD01H3 Research Project in Physics and Astrophysics *or* **PHYD02Y3 Extended Research Project in Physics and Astrophysics *or* PHYD72H3 Supervised Reading in Physics and Astrophysics]
PHYD26H3 Planetary Geophysics
PHYD37H3 Introduction to Fluid Mechanics
PHYD38H3 Introduction to Nonlinear Systems and Chaos
PSCD02H3 Current Questions in Mathematics and Science
PSCD50H3 Advanced Topics in Quantum Mechanics

** A maximum of 0.5 credit from PHYD02Y3 will count against this requirement. The remaining 0.5 credit can be used to satisfy degree-level requirements.

Calendar Section: Physical Sciences

SPECIALIST PROGRAM IN PHYSICS AND ASTROPHYSICS (SCIENCE) - SCSPE1234A

For a list of updated Program Supervisors, please visit the Physics and Astrophysics website.

Program Requirements:
The Program requires 13.5 credits as follows:

First Year
PHYA10H3 Physics I for the Physical Sciences
PHYA21H3 Physics II for the Physical Sciences
[MATA30H3 Calculus I for Physical Sciences or MATA31H3 Calculus I for Mathematical Sciences]
[MATA22H3 Linear Algebra I for Mathematical Sciences or MATA23H3 Linear Algebra I]
[MATA36H3 Calculus II for Physical Sciences or MATA37H3 Calculus II for Mathematical Sciences]
*[CSCA08H3 Introduction to Computer Science *or* CSCA20H3 Introduction to Programming]

*The preferred and recommended course for this program is CSCA20H3. However, students planning to take upper-level Computer Science courses should take CSCA08H3 instead.

Second Year
ASTB23H3 Astrophysics of Stars, Galaxies and the Universe
PHYB10H3 Intermediate Physics Laboratory I
PHYB56H3 Introduction to Quantum Physics
PHYB21H3 Electricity and Magnetism
PHYB52H3 Thermal Physics
PHYB54H3 Mechanics: From Oscillations to Chaos
MATB41H3 Techniques of the Calculus of Several Variables I
MATB42H3 Techniques of the Calculus of Several Variables II
MATB44H3 Differential Equations I

Third Year
PHYC50H3 Electromagnetic Theory
PHYC56H3 Quantum Mechanics I
PHYC11H3 Intermediate Physics Laboratory II
PHYC54H3 Classical Mechanics
PHYB57H3 Introduction to Scientific Computing
MATC34H3 Complex Variables
MATC46H3 Differential Equations II

Fourth Year
1.5 credit from the following:
ASTC25H3 Astrophysics of Planetary Systems
PHYC14H3 Introduction to Atmospheric Physics
PHYD26H3 Planetary Geophysics

PHYD27H3 Physics of Climate Modeling
PHYD28H3 Introduction to Magnetohydrodynamics for Astrophysics and Geophysics
PHYD37H3 Introduction to Fluid Mechanics
PHYD38H3 Introduction to Nonlinear Systems and Chaos
PHYD57H3 Advanced Computational Methods in Physics
PHY452H1 Basic Statistical Mechanics
PHY456H1 Quantum Mechanics II
PHY483H1 Relativity Theory I
PHY484H1 Relativity Theory II
PHY487H1 Condensed Matter Physics
PHY489H1 Introduction to High Energy Physics
PHY491H1 Current Interpretations of Quantum Mechanics
PHY492H1 Advanced Atmospheric Physics
PSCD50H3 Advanced Topics in Quantum Mechanics
and
0.5 credit from the following:
PHYD01H3 Research Project in Physics and Astrophysics
**PHYD02Y3 Extended Research Project in Physics and Astrophysics
PHYD72H3 Supervised Reading in Physics and Astrophysics
and
[0.5 credit from a course in AST or PHY at the C-, D-, 300-, or 400-level] or [PSCD02H3 Current Questions in Mathematics and Science]

**A maximum of 0.5 credit from PHYD02Y3 will count against this requirement. The remaining 0.5 credit can be used to satisfy degree-level requirements.

Calendar Section: Physics and Astrophysics

SPECIALIST PROGRAM IN POLITICAL SCIENCE (ARTS) - SCSPE2015

Program Requirements
Students must complete at least 12.0 full credits in Political Science including:

1. Introduction to Political Science (1.0 credit):
POLA01H3 Critical Issues in Politics I
POLA02H3 Critical Issues in Politics II

2. Political Theory (1.0 credit):
POLB72H3 Introduction to Political Theory
0.5 credit from among the courses listed in the Political Theory Area of Focus Table

3. Canadian Politics (1.0 credit):
POLB56H3 Canadian Politics and Government
POLB57H3 The Canadian Constitution and the Charter of Rights

4. International Relations (1.0 credit):

POLB80H3 Introduction to International Relations I
POLB81H3 Introduction to International Relations II

5. Comparative Politics (1.0 credit):
POLB90H3 Comparative Development in International Perspective
POLB91H3 Introduction to Comparative Politics

6. At least two of the following from Research Methods (1.0 credit):
POLB40H3 Quantitative Reasoning for Political Science and Public Policy
[STAB23H3 Introduction to Statistics for the Social Sciences or equivalent]
POLC78H3 Political Analysis I

7. Applications (5.0 credits):
5.0 credits in POL or PPG courses at the C- and/or D-level

8. Advanced Applications (1.0 credit)
At least 1.0 credit in POL or PPG courses at the D-level

Calendar Section: Political Science

SPECIALIST PROGRAM IN PSYCHOLINGUISTICS (SCIENCE) - SCSPEPLIN

For curriculum inquiries, contact the department's Program Coordinator: **dls-ua@utsc.utoronto.ca**

Note: **Effective Fall 2024, the Specialist in Psycholinguistics will be designated as a Science program. Students who are enrolled in the program prior to Fall 2024 may consult with the Program Coordinator for advice.**

Program Requirements

Students must complete 13.5 credits, including 4.0 credits at the C- and D-levels of which 1.0 credit must be at the D-level as follows:

1. 5.5 credits as follows:
LINA01H3 Introduction to Linguistics
LINA02H3 Applications of Linguistics
PSYA01H3 Introduction to Biological and Cognitive Psychology
PSYA02H3 Introduction to Clinical, Developmental, Personality and Social Psychology
LINB04H3 Phonology I
LINB06H3 Syntax I
LINB09H3 Phonetics: The Study of Speech Sounds
LINB29H3 Quantitative Methods in Linguistics
LINC29H3 Advanced Quantitative Methods in Linguistics
PLIC24H3 First Language Acquisition
PLIC55H3 Psycholinguistics

2. 1.5 credits from the following :

1.0 credit from:
LINB10H3 Morphology
LINB20H3 Sociolinguistics
LINC02H3 Phonology II

0.5 credit from:
LINC11H3 Syntax II
LINC12H3 Semantics: The Study of Meaning

3. 3.0 credits from the following:
LINB62H3 Structure of American Sign Language
LIND09H3 Phonetic Analysis
PLIC25H3 Second Language Acquisition
PLID34H3 Psycholinguistics of Reading
PLID44H3 Acquisition of the Mental Lexicon
PLID50H3 Speech Perception
PLID53H3 Sentence Processing
PLID74H3 Language and Aging

4. 3.0 credits from the following:
BIOA11H3 Introduction to the Biology of Humans
BIOB35H3 Essentials of Human Physiology
LINB19H3 Computers in Linguistics
LINB35H3 Introduction to Computational Linguistics
PLIC54H3 Speech Physiology and Speech Disorders in Children and Adults
PLIC75H3 Language and the Brain
PLID56H3 Special Topics in Language Disorders in Children
PSYB20H3 Introduction to Developmental Psychology
[PSYB51H3 Introduction to Perception *or* PSYB57H3 Introduction to Cognitive Psychology]
(PSYB65H3) Human Brain and Behaviour
PSYC21H3 Adulthood and Aging

5. 0.5 further credits in LIN and/or PLI

Note: students interested in pursuing Speech Language Pathology as an option for graduate studies should complete BIOA11H3 and BIOB35H3 (of component 4 of the program requirements) in order to satisfy a portion of the physiology requirement necessary for admissions.

Calendar Section: Linguistics

SPECIALIST PROGRAM IN PSYCHOLOGY (SCIENCE) - SCSPE1160

Enrolment Requirements
Enrolment in the Program is limited. Admission will require:
(a.) completion of any Grade 12 U/M high school math course or equivalent (or successful completion of the UTSC Online Mathematics Preparedness Course or equivalent), and
(b.) completion of Grade 12 U/M high school biology or equivalent (or BIOA11H3 or equivalent), and
(c.) completion of a minimum of 4.0 credits, including 1.0 credit in Psychology, and
(d.) either (1) a final grade of 75% or higher in both PSYA01H3 and PSYA02H3, or (2) a final grade of 64% or higher in both PSYA01H3 and PSYA02H3, and a final grade of 72% or higher in [PSYB70H3 or (PSYB01H3)] and [PSYB07H3 or equivalent].

Application for admission will be made to the Office of the Registrar through ACORN, during the Limited Program application periods. For more information on applying to limited enrolment programs, please visit the Office of the Registrar website.

Program Requirements

The Program requires completion of 12.5 credits, including at least 4.0 credits at the C- or D-level, of which at least 1.0 credit must be at the D-level:

1. Introduction to Psychology (1.0 credit)
PSYA01H3 Introduction to Biological and Cognitive Psychology
PSYA02H3 Introduction to Clinical, Developmental, Personality and Social Psychology

2. Laboratory Methods (1.5 credits)
[PSYB70H3 Methods in Psychological Science *or* (PSYB01H3) Psychological Research Laboratory]
PSYC70H3 Advanced Research Methods Laboratory
and
0.5 credit from among the following:
(PSYC06H3 Psychophysiology Laboratory)
[PSYC71H3 *or* (PSYC11H3) Social Psychology Laboratory]
[PSYC72H3 *or* (PSYC26H3) Developmental Psychology Laboratory]
[PSYC74H3 *or* (PSYC05H3) Human Movement Laboratory]
PSYC75H3 Cognitive Psychology Laboratory
[PSYC76H3 *or* (PSYC04H3) Brain Imaging Laboratory]

3. Statistical Methods (1.0 credit)
PSYB07H3 Data Analysis in Psychology
[PSYC08H3 Advanced Data Analysis in Psychology *or* PSYC09H3 Applied Multiple Regression in Psychology]

4. PSYC02H3 Scientific Communication in Psychology (0.5 credit)

5. PSYC85H3 History of Psychology (0.5 credit)

6. Breadth in Psychology at the B-level and C-level (5.0 credits)
Students are required to take 3.0 credits at the B-level or C-level from one of the two content groups listed below and 2.0 credits from the other group:
(a) Social and Developmental (courses listed in the 10- and 20-series)
(b) Perception, Cognition and Physiology (courses listed in the 50- and 60-series)

7. Seminars in Psychology at the D-level (1.0 credit)
All PSY D-level courses are considered "seminars", with the exception of PSYD98Y3. Students must take 0.5 credit from each grouping below:
(a) Social and Developmental (courses listed in the 10- and 20-series)
(b) Perception, Cognition and Physiology (courses listed in the 50- and 60-series)

8. Additional credits in Psychology at the B-level or higher (2.0 credits)
Of the 2.0 credits, at least 1.0 credit must be at the C-level. Supervised study [PSYC90H3 or PSYC93H3] *or* thesis [PSYD98Y3] courses may be used to fulfill a maximum of 0.5 credit.

Calendar Section: Psychology

SPECIALIST PROGRAM IN SOCIO-CULTURAL ANTHROPOLOGY (ARTS) - SCSPE1780

The Specialist Program in Socio-Cultural Anthropology is intended to provide the professionally oriented student with background preparation of sufficient breadth and depth to pursue specialized training at the graduate level. It is also designed to offer interested students a course structure as background for a wide range of occupations and professions. Students are encouraged to consult with the Undergraduate Counsellor regarding the selection of a course sequence appropriate to their interests and objectives. In exceptional circumstances, supervised research and reading courses are available at the C- and D-levels (ANTC03H3, ANTD31H3). These courses require special arrangements prior to registration. Read the descriptions for these courses carefully as restrictions apply.

Program Requirements
The Program requires completion of 12.0 credits, as indicated below

1. 1.0 credit as follows:
ANTA01H3 Introduction to Anthropology: Becoming Human
ANTA02H3 Introduction to Anthropology: Society, Culture and Language

2. ANTB19H3 Ethnography and the Comparative Study of Human Societies

3. ANTB20H3 Ethnography of the Global Contemporary

4. 10.0 credits at the B-level *or* above, of which at least 5.0 credits must be at the C- *or* D-level, including at least 1.5 credits at the D-level. Students must ensure that as part of Requirement 4, they complete:
a. At least 1.0 credit in area studies courses: ANTB05H3, ANTB16H3, ANTB18H3, ANTB26H3/(ANTC89H3), ANTB42H3/(ANTC12H3), ANTB65H3, or ANTD07H3
b. At least 0.5 credit in Ethnographic methods: ANTC70H3
c. At least 0.5 credit from among ANTD05H3, ANTD06H3, or ANTD15H3

Note: ANTB19H3 and ANTB20H3 are prerequisites for C- and D-level courses in the Socio-Cultural Anthropology program.

Calendar Section: Anthropology

SPECIALIST PROGRAM IN SOCIOLOGY (ARTS) - SCSPE1013

Enrolment Requirements
Enrolment in the Specialist program is limited. Students will normally apply to enter the program after completing 4.0 or 5.0 credits including SOCA05H3. Decisions are made on program admissions only twice a year, in May and in August, and are based on student requests submitted to the Office of the Registrar through ROSI. Admission will require a final grade of 70% or higher in SOCA05H3 (or 70% or higher in SOCA03Y3, or a CGPA of 70% or higher in SOCA01H3 and SOCA02H3). For students applying after completing 8.0 to 10.0 credits, admission will be on the basis of SOC courses completed, or on overall CGPA for those students who have not completed any SOC courses. Specialist students will be entitled to priority access to SOCB42H3, SOCB43H3, SOCC23H3 and SOCC31H3, for fall-winter sessions, during the summer early registration period.

Program Requirements
The Program requires completion of 12.0 credits as described below. No more than 14.0 credits in Sociology may be included in a four-year degree.

1. 1.0 credit as follows:

SOCA05H3 and SOCA06H3 [or (SOCA03Y3) or (SOCA01H3) and (SOCA02H3)]

2. SOCB05H3 Logic of Social Inquiry

3. SOCB35H3 Numeracy and Society

4. SOCB42H3 Theory I: Discovering the Social

5. SOCB43H3 Theory II: Big Ideas in Sociology

6. 3.0 credits at the B-level in Sociology

7. SOCC40H3 Contemporary Sociological Theory

8. SOCC23H3 Practicum in Qualitative Research Methods
or
SOCC31H3 Practicum in Quantitative Research Methods

9. 0.5 credit in SOC at the C-level that has been designated as an Applied Writing Skills course

10. 4.5 additional credits at the C- or D- level in SOC courses*, of which at least 1.0 credit must be at the D-level.
*Students may substitute courses from cognate disciplines with the prior approval of the program supervisor.

Calendar Section: Sociology

SPECIALIST PROGRAM IN STATISTICS - Quantitative Finance Stream (SCIENCE) - SCSPE2289F

Supervisor of Studies: S. Damouras Email: sotirios.damouras@utoronto.ca (416-287-7269)

Program Objectives
This program provides training in the discipline of Statistics. Students are given a thorough grounding in the theory underlying statistical reasoning and learn the methodologies associated with current applications. A full set of courses on the theory and methodology of the discipline represents the core of the program. In addition, students select one of three streams, each of which provides immediately useful, job-related skills. The program also prepares students for further study in Statistics and related fields.

The Quantitative Finance Stream focuses on teaching the computational, mathematical and statistical techniques associated with modern-day finance. Students acquire a thorough understanding of the mathematical models that underlie financial modeling and the ability to implement these models in practical settings. This stream prepares students to work as quantitative analysts in the financial industry, and for further study in Quantitative Finance.

Enrolment Requirements

Enrolment in the Specialist in Statistics (all streams) is limited. Students may apply to enter the program after completing 4.0 credits, and must meet the requirements described below:

1. Students already admitted to the UTSC Year 1 Statistics admissions category:

Required Courses:

Students must have passed the following CSC and MAT courses:

a. All streams: CSCA08H3, [CSCA67H3 or MATA67H3], MATA22H3, MATA31H3, and MATA37H3.
b. Machine Learning and Data Science stream only: CSCA48H3

Required Grades:

There are a limited number of available spaces in each stream of the Specialist in Statistics. Students that meet all of the following requirements will be eligible to be considered for one of the spaces in a Statistics Specialist POSt; admission will be based on academic performance in the required A-level courses, identified above. Students who meet all of the following requirements but are not admitted to the Specialist will be admitted to the Major in Statistics:
a. All streams: a cumulative grade point average (CGPA) of at least 2.5 over the following courses: CSCA08H3, CSC/

MATA67H3, MATA22H3, MATA31H3, and MATA37H3; and
b. For the Machine Learning and Data Science stream only: a final grade of at least B in CSCA48H3.

2. Students admitted to other UTSC Year 1 admissions categories:

Students that have been admitted to other CMS admissions categories (Computer Science or Mathematics) or any other UTSC Year 1 admissions categories are eligible to apply for a Statistics Specialist POSt. Admission will be based on academic performance in the required A-level courses, identified above. The requirements change each year depending on available spaces and the pool of eligible applicants, and students are cautioned that there is no guarantee of admission; as such, students are strongly advised to plan to enrol in backup programs.

For more information about the admission requirements, please visit the following CMS webpage.

Program Requirements
To complete the program, a student must meet the course requirements described below.

The first-year requirements of the three streams are almost identical, except that the Quantitative Finance stream requires MGEA02H3 while the Statistical Machine Learning and Data Science stream requires CSCA48H3, and the Statistical Science stream requires STAA57H3; these courses need not be taken in the first year.

Note: There are courses on the St. George campus that can be taken to satisfy some of the requirements of the program. STAB52H3, STAB57H3, STAC62H3 and STAC67H3, however, must be taken at the University of Toronto Scarborough; no substitutes are permitted without permission of the program supervisor.

Core (7.5 credits)

1. Writing Requirement (0.5 credit) (*)
0.5 credit from the following: ANTA01H3, ANTA02H3, CTLA01H3, ENGA10H3, ENGA11H3, ENGB06H3, ENGB07H3, ENGB08H3, ENGB09H3, ENGB17H3, ENGB19H3, ENGB50H3, GGRA02H3, GGRA03H3, GGRB05H3, ACMA01H3, LINA01H3, PHLA10H3, PHLA11H3, WSTA01H3.
(*) It is recommended that this requirement be satisfied by the end of the second year.

2. A-level courses (2.5 credits)
CSCA08H3 Introduction to Computer Science I
MATA22H3 Linear Algebra I or Mathematical Sciences
MATA31H3* Calculus I for Mathematical Sciences
MATA37H3* Calculus II for Mathematical Sciences
[MATA67H3 or CSCA67H3 Discrete Mathematics]

3. B-level courses (2.5 credits)
MATB24H3 Linear Algebra II
MATB41H3 Techniques of the Calculus of Several Variables I
MATB61H3 Linear Programming and Optimization
STAB52H3 Introduction to Probability
STAB57H3 Introduction to Statistics

4. C-level courses (1.5 credits)
CSCC37H3 Introduction to Numerical Algorithms for Computational Mathematics
STAC62H3 Probability and Stochastic Processes I
STAC67H3 Regression Analysis

5. D-level courses (0.5 credit)
STAD37H3 Multivariate Analysis

Quantitative Finance Stream
This stream requires a total of 26 courses (13.0 credits). In addition to the core requirements, 11 other courses (5.5 credits) must be taken satisfying all of the following requirements:

6. Additional A-level courses (0.5 credit)
MGEA02H3 Introduction to Microeconomics: A Mathematical Approach

7. Additional B-level courses (2.0 credits)
ACTB40H3 Fundamentals of Investment and Credit
MATB42H3 Techniques of Calculus of Several Variables II
MATB44H3 Differential Equations I
STAB41H3 Financial Derivatives

8. Additional Upper-Level courses (3.0 credits)
MATC46H3 Differential Equations II
STAC70H3 Statistics and Finance I

STAD57H3 Time Series Analysis
STAD70H3 Statistics and Finance II
and
1.0 credit from the following:
CSCC11H3 Introduction to Machine Learning and Data Mining
MATC37H3 Introduction to Real Analysis
STAC51H3 Categorical Data Analysis
STAC58H3 Statistical Inference
STAC63H3 Probability and Stochastic Processes II
STAD68H3 Advanced Machine Learning and Data Mining
STAD92H3 Readings in Statistics
STAD93H3 Readings in Statistics
STAD94H3 Statistics Project
STAD95H3 Statistics Project
APM462H1 Nonlinear Optimization
Note: Students enrolled in this stream should also consider taking complementary courses in economics and finance (e.g. MGEA06H3, MGEB02H3, MGEB06H3, MGEC72H3), or the Minor in Economics for Management Studies.

Calendar Section: Statistics

SPECIALIST PROGRAM IN STATISTICS - Statistical Machine Learning and Data Science Stream (SCIENCE) - SCSPE2289Z

Supervisor of Studies: S. Damouras Email: sotirios.damouras@utoronto.ca (416-287-7269)

Program Objectives
This program provides training in the discipline of Statistics. Students are given a thorough grounding in the theory underlying statistical reasoning and learn the methodologies associated with current applications. A full set of courses on the theory and methodology of the discipline represents the core of the program. In addition, students select one of three streams, each of which provides immediately useful, job-related skills. The program also prepares students for further study in Statistics and related fields.

The Statistical Machine Learning and Data Science Stream focuses on applications of statistical theory and concepts to the discovery (or "learning") of patterns in data. This field is a recent development in statistics with wide applications in science and technology including computer vision, image understanding, natural language processing, medical diagnosis, and stock market analysis. This stream prepares students for direct employment in industry and government, and further study in Statistical Machine Learning.

Enrolment Requirements

Enrolment in the Specialist in Statistics (all streams) is limited. Students may apply to enter the program after completing 4.0 credits, and must meet the requirements described below:

1. Students already admitted to the UTSC Year 1 Statistics admissions category:

Required Courses:

Students must have passed the following CSC and MAT courses:

a. All streams: CSCA08H3, [CSCA67H3 or MATA67H3], MATA22H3, MATA31H3, and MATA37H3.
b. Machine Learning and Data Science stream only: CSCA48H3

Required Grades:

There are a limited number of available spaces in each stream of the Specialist in Statistics. Students that meet all of the following requirements will be eligible to be considered for one of the spaces in a Statistics Specialist POSt; admission will be based on academic performance in the required A-level courses, identified above. Students who meet all of the following requirements but are not admitted to the Specialist will be admitted to the Major in Statistics:
a. All streams: a cumulative grade point average (CGPA) of at least 2.5 over the following courses: CSCA08H3, CSC/MATA67H3, MATA22H3, MATA31H3, and MATA37H3; and
b. For the Machine Learning and Data Science stream only: a final grade of at least B in CSCA48H3.

2. Students admitted to other UTSC Year 1 admissions categories:

Students that have been admitted to other CMS admissions categories (Computer Science or Mathematics) or any other UTSC Year 1 admissions categories are eligible to apply for a Statistics Specialist POSt. Admission will be based on academic performance in the required A-level courses, identified above. The requirements change each year depending on available spaces and the pool of eligible applicants, and students are cautioned that there is no guarantee of admission; as such, students are strongly advised to plan to enrol in backup programs.

For more information about the admission requirements, please visit the following CMS webpage.

Program Requirements
To complete the program, a student must meet the course requirements described below.

The first-year requirements of the three streams are almost identical, except that the Quantitative Finance stream requires MGEA02H3 while the Statistical Machine Learning and Data Science stream requires CSCA48H3, and the Statistical Science stream requires STAA57H3; these courses need not be taken in the first year.

Note: There are courses on the St. George campus that can be taken to satisfy some of the requirements of the program. STAB52H3, STAB57H3, STAC62H3 and STAC67H3, however, must be taken at the University of Toronto Scarborough; no substitutes are permitted without permission of the program supervisor.

Core (7.5 credits)

1. Writing Requirement (0.5 credit) (*)
0.5 credit from the following: ANTA01H3, ANTA02H3, CTLA01H3, ENGA10H3, ENGA11H3, ENGB06H3, ENGB07H3, ENGB08H3, ENGB09H3, ENGB17H3, ENGB19H3, ENGB50H3, GGRA02H3, GGRA03H3, GGRB05H3, ACMA01H3, LINA01H3, PHLA10H3, PHLA11H3, WSTA01H3.
(*) It is recommended that this requirement be satisfied by the end of the second year.

2. A-level courses (2.5 credits)
CSCA08H3 Introduction to Computer Science I
MATA22H3 Linear Algebra I or Mathematical Sciences
MATA31H3* Calculus I for Mathematical Sciences
MATA37H3* Calculus II for Mathematical Sciences
[MATA67H3 or CSCA67H3 Discrete Mathematics]

3. B-level courses (2.5 credits)
MATB24H3 Linear Algebra II
MATB41H3 Techniques of the Calculus of Several Variables I
MATB61H3 Linear Programming and Optimization
STAB52H3 Introduction to Probability
STAB57H3 Introduction to Statistics

4. C-level courses (1.5 credits)
CSCC37H3 Introduction to Numerical Algorithms for Computational Mathematics
STAC62H3 Probability and Stochastic Processes I
STAC67H3 Regression Analysis

5. D-level courses (0.5 credit)
STAD37H3 Multivariate Analysis

Statistical Machine Learning and Data Science Stream
This stream requires a total of 26 courses (13.0 credits). In addition to the core requirements, 11 other courses (5.5 credits) must be taken satisfying all of the following requirements:

6. Additional A-level courses (0.5 credit)
CSCA48H3 Introduction to Computer Science II

7. Additional B-level courses (2.0 credits)
CSCB07H3 Software Design
[CSCB20H3 Introduction to Databases and Web Applications or STAA57H3 Introduction to Data Science]
CSCB36H3 Introduction to the Theory of Computation
CSCB63H3 Design and Analysis of Data Structures

8. Additional Upper Level courses (3.0 credits)
CSCC11H3 Introduction to Machine Learning and Data Mining
STAC58H3 Statistical Inference
[STAD68H3 Advanced Machine Learning and Data Mining or STAD78H3 Machine Learning Theory]
and
1.5 credits from the following (*):
Any C or D-level CSC, MAT or STA courses, excluding: STAC32H3, STAC53H3 and STAD29H3, 1.0 credit must be STA courses.

(*) Some of the courses on this list have prerequisites that are not included in this program; in choosing courses to satisfy this requirement, check the prerequisites carefully and plan accordingly.

Calendar Section: Statistics

SPECIALIST PROGRAM IN STATISTICS - Statistical Science Stream (SCIENCE) - SCSPE2279F

Supervisor of Studies: S. Damouras Email: sotirios.damouras@utoronto.ca (416-287-7269)

Program Objectives
This program provides training in the discipline of Statistics. Students are given a thorough grounding in the theory underlying statistical reasoning and learn the methodologies associated with current applications. A full set of courses on the theory and methodology of the discipline represents the core of the program. In addition, students select one of three streams, each of which provides immediately useful, job-related skills. The program also prepares students for further study in Statistics and related fields.

The Statistical Science Stream is concerned with giving students a sound grounding in statistical methodology and theory. Students acquire expertise in the proper collection of data, the methods used to analyze data to answer scientific questions of interest, and the theory that underlies these activities. The program provides preparation for employment as a statistician or for further graduate studies in statistics.

Enrolment Requirements

Enrolment in the Specialist in Statistics (all streams) is limited. Students may apply to enter the program after completing 4.0 credits, and must meet the requirements described below:

1. Students already admitted to the UTSC Year 1 Statistics admissions category:

Required Courses:

Students must have passed the following CSC and MAT courses:

a. All streams: CSCA08H3, [CSCA67H3 or MATA67H3], MATA22H3, MATA31H3, and MATA37H3.
b. Machine Learning and Data Science stream only: CSCA48H3

Required Grades:

There are a limited number of available spaces in each stream of the Specialist in Statistics. Students that meet all of the following requirements will be eligible to be considered for one of the spaces in a Statistics Specialist POSt; admission will be based on academic performance in the required A-level courses, identified above. Students who meet all of the following requirements but are not admitted to the Specialist will be admitted to the Major in Statistics:
a. All streams: a cumulative grade point average (CGPA) of at least 2.5 over the following courses: CSCA08H3, CSC/MATA67H3, MATA22H3, MATA31H3, and MATA37H3; and
b. For the Machine Learning and Data Science stream only: a final grade of at least B in CSCA48H3.

2. Students admitted to other UTSC Year 1 admissions categories:

Students that have been admitted to other CMS admissions categories (Computer Science or Mathematics) or any other UTSC Year 1 admissions categories are eligible to apply for a Statistics Specialist POSt. Admission will be based on academic performance in the required A-level courses, identified above. The requirements change each year depending on available spaces and the pool of eligible applicants, and students are cautioned that there is no guarantee of admission; as such, students are strongly advised to plan to enrol in backup programs.

For more information about the admission requirements, please visit the following CMS webpage.

Program Requirements
To complete the program, a student must meet the course requirements described below.

The first-year requirements of the three streams are almost identical, except that the Quantitative Finance stream requires MGEA02H3 while the Statistical Machine Learning and Data Science stream requires CSCA48H3, and the Statistical Science stream requires STAA57H3; these courses need not be taken in the first year.

Note: There are courses on the St. George campus that can be taken to satisfy some of the requirements of the program.

STAB52H3, STAB57H3, STAC62H3 and STAC67H3, however, must be taken at the University of Toronto Scarborough; no substitutes are permitted without permission of the program supervisor.

Core (7.5 credits)

1. Writing Requirement (0.5 credit) (*)
0.5 credit from the following: ANTA01H3, ANTA02H3, CTLA01H3, ENGA10H3, ENGA11H3, ENGB06H3, ENGB07H3, ENGB08H3, ENGB09H3, ENGB17H3, ENGB19H3, ENGB50H3, GGRA02H3, GGRA03H3, GGRB05H3, ACMA01H3, LINA01H3, PHLA10H3, PHLA11H3, WSTA01H3.
(*) It is recommended that this requirement be satisfied by the end of the second year.

2. A-level courses (2.5 credits)
CSCA08H3 Introduction to Computer Science I
MATA22H3 Linear Algebra I or Mathematical Sciences
MATA31H3* Calculus I for Mathematical Sciences
MATA37H3* Calculus II for Mathematical Sciences
[MATA67H3 or CSCA67H3 Discrete Mathematics]

3. B-level courses (2.5 credits)
MATB24H3 Linear Algebra II
MATB41H3 Techniques of the Calculus of Several Variables I
MATB61H3 Linear Programming and Optimization
STAB52H3 Introduction to Probability
STAB57H3 Introduction to Statistics

4. C-level courses (1.5 credits)
CSCC37H3 Introduction to Numerical Algorithms for Computational Mathematics
STAC62H3 Probability and Stochastic Processes I
STAC67H3 Regression Analysis

5. D-level courses (0.5 credit)
STAD37H3 Multivariate Analysis

Statistical Science Stream
This stream requires a total of 26 courses (13.0 credits). In addition to the core requirements, 11 other courses (5.5 credits) must be taken satisfying all of the following requirements:

6. Additional A-level courses (0.5 credit)
STAA57H3 Introduction to Data Science

7. Additional B-level courses (1.0 credit)
MATB42H3 Techniques of Calculus of Several Variables II
MATB44H3 Differential Equations I

8. Additional C-level courses (2.5 credits)
STAC33H3 Introduction to Applied Statistics
STAC50H3 Data Collection
STAC51H3 Categorical Data Analysis
STAC58H3 Statistical Inference
STAC63H3 Probability and Stochastic Processes II

9. Additional C- and D-level courses (1.0 credit)*
1.0 credit from the following:
CSCC11H3 Introduction to Machine Learning and Data Mining
MATC34H3 Complex Variables
MATC37H3 Introduction to Real Analysis (strongly recommended for students who wish to pursue graduate studies)
STAD68H3 Advanced Machine Learning and Data Mining
STAD78H3 Machine Learning Theory
STAD80H3 Analysis of Big Data
STAD92H3 Readings in Statistics
STAD93H3 Readings in Statistics
STAD94H3 Statistics Project
STAD95H3 Statistics Project
*Students should plan ahead when taking these courses to ensure that prerequisites are satisfied and, in the case of STAD92H3, STAD93H3, STAD94H3, and STAD95H3, that a faculty member has agreed to supervise the course (as this is not guaranteed).

10. Additional D-level courses (0.5 credit)
STAD57H3 Time Series Analysis

Calendar Section: Statistics

SPECIALIST PROGRAM IN STRATEGIC MANAGEMENT - Entrepreneurship Stream (BACHELOR OF BUSINESS ADMINISTRATION) - SCSPE2432Q

Academic Director: S. Ahmed, *Email:* mgmtss@utsc.utoronto.ca

At its most fundamental level, effective strategic management is about understanding and successfully managing strategic interactions with other firms and individuals. Strategic interactions take place whenever our fortunes depend not only on our own actions, but also on the actions of our rivals (and vice versa). In these instances, our optimal actions and those of our partners and competitors are inextricably connected. How should we think about these interactions and formulate an action plan?

The Specialist Program in Strategic Management, which includes a Management Strategy Stream and an Entrepreneurship Stream, will give students the skills to address this essential question. Integrating tools from economics and other management disciplines, you will gain a profound understanding of business and corporate strategy and their sub-disciplines, and/or entrepreneurship.

Overall, as a Strategic Management specialist, students will develop an ability to identify, simplify, and analyze highly complex business problems, to strategize implementable solutions, and to articulate the key elements of their strategic reasoning in a simple, compelling and engaging way to a non-expert audience. Indeed, the strategic mindset that students will gain from this specialty will help them successfully navigate the stormy waters of business, whether they plan a career as a management consultant, economic consultant, manager in private-sector, public sector and non-profit organizations, investment banker, or entrepreneur.

Both streams have a non-co-op and a co-op component. Co-op students should see the section regarding work term requirements for specific details on courses required before each work term.

Enrolment Requirements
Enrolment in this Program is limited.

1. Students enrolling directly from high school are admitted on the basis of academic performance. They must have completed Grade 12 English and Grade 12 Calculus.

Course Guidelines for Students Admitted to B.B.A. Programs Directly from High School Students must complete the following courses in their first year of study: MGEA02H3, MGEA06H3, MATA34H3, MGAB01H3, MGAB02H3, MGHA12H3, MGMA01H3 and MGTA38H3.

2. Students requesting admission after first year must request ONLY ONE Management Subject POSt on ACORN. Students may apply at the end of the Winter semester and/or at the end of the Summer semester. Application for admission will be considered only for the round during which the student has made the Subject POSt request.

The minimum Cumulative Grade Point Average (CGPA) for Program admission is calculated for each application period, and is based on University of Toronto courses only. Decisions are made when all grades have been received.

Students must have completed the following courses (or their equivalent): MGEA02H3, MGEA06H3, and MATA34H3. However, [[MATA29H3 or MATA30H3 or MATA31H3 or (MATA32H3)] and [(MATA33H3) or MATA35H3 or MATA36H3 or MATA37H3]] may also be used to satisfy the calculus requirement. None of the courses listed above (or their equivalent) can be designated as CR/NCR. Of the total credits that students have completed when they apply, at least 4.0 credits just in University of Toronto courses that have been graded (i.e., not designated as CR/NCR). Students may apply until they have completed up to 10.0 credits. Students who have completed more than 10.0 credits will not be considered for admission to the Program.

In order to remain in the Program, students must maintain a CGPA of 2.0 or higher after having attempted at least 4.0 credits. Students whose CGPA falls below 2.0 will be removed from the Program. Students removed from the program for this reason may request reinstatement if they complete at least 2.0 credits (none of which can be designated as CR/NCR) in the following session and raise their CGPA to at least 2.0. This opportunity will be provided only once.

To complete the program, a student must meet the course requirements described below. The program requirements comprise a core 10.5 credits, and an additional 3.5 credits for the Entrepreneurship stream (14.0 credits total.)

Note: A single course may only be used once to fulfill one of the following program requirements.

Core (10.5 credits):

1. (7.0 credits):
MGMA01H3 Principles of Marketing
MGTA38H3 Management Communications
MGAB01H3 Introductory Financial Accounting I
MGAB02H3 Introductory Financial Accounting II
MGAB03H3 Introductory Management Accounting
MGFB10H3 Principles of Finance
MGHA12H3 Human Resource Management
MGHB02H3 Managing People and Groups in Organizations
MGMB01H3 Marketing Management
MGFC10H3 Intermediate Finance
MGHC02H3 Management Skills
MGOC10H3 Analytics for Decision Making
MGOC20H3 Operations Management
and
0.5 credit at the D-level in either Management or Economics for Management Studies courses

2. (0.5 credit):
MATA34H3
or
[[MATA29H3/MATA30H3/MATA31H3/(MATA32H3)] and [(MATA33H3)/MATA35H3/MATA36H3/MATA37H3]]

3. (3.0 credits):
MGEA02H3 Introduction to Microeconomics: A Mathematical Approach
MGEA06H3 Introduction to Macroeconomics: A Mathematical Approach
MGEB02H3 Price Theory: A Mathematical Approach
MGEB06H3 Macroeconomic Theory and Policy: A Mathematical Approach
MGEB11H3 Quantitative Methods in Economics I
MGEB12H3 Quantitative Methods in Economics II

Entrepreneurship Stream (3.5 credits):

4. Foundation Courses - 1.0 credit:
MGSB01H3 Introduction to Strategy
MGSC01H3 Strategic Management I

5. Concentration Courses – 1.5 credits:
MGSB22H3 Entrepreneurship
MGSC35H3 Innovation
MGFD15H3 Private Equity

6. Advanced Course – 0.5 credit:
MGSD24H3 New Venture Creation and Planning

7. Elective Courses – 0.5 credit from:
MGSC05H3 The Changing World of Business-Government Relations
MGSC10H3 Business Strategy in the Digital Age
MGSC14H3 Management Ethics
MGSD05H3 Strategic Management II
MGSD15H3 Managing in the Information Economy
MGSD40H3 Corporate Social Responsibility
MGSC03H3 Public Management
MGSC12H3 Narrative and Management
MGSC20H3 Consulting and Contracting: New Ways of Work
MGSC30H3 The Legal Environment of Business I
MGSD01H3 Senior Seminar in Strategic Management
MGSD30H3 Intellectual Property Law
MGEC11H3 Introduction to Regression Analysis
MGEC41H3 Industrial Organization
MGED43H3 Organization Strategies
MGSD55H3 Strategy and Technology

Note: In selecting options and electives, students should refer to the guidelines for program breadth and depth found in the Degree Requirements section of the UTSC *Calendar*.

Calendar Section: Management

SPECIALIST PROGRAM IN STRATEGIC MANAGEMENT - Management Strategy Stream (BACHELOR OF BUSINESS ADMINISTRATION) - SCSPE24320

Academic Director: S. Ahmed, *Email:* mgmtss@utsc.utoronto.ca

At its most fundamental level, effective strategic management is about understanding and successfully managing strategic interactions with other firms and individuals. Strategic interactions take place whenever our fortunes depend not only on our own actions, but also on the actions of our rivals (and vice versa). In these instances, our optimal actions and those of our partners and competitors are inextricably connected. How should we think about these interactions and formulate an action plan?

The Specialist Program in Strategic Management, which includes a Management Strategy Stream and an Entrepreneurship Stream, will give students the skills to address this essential question. Integrating tools from economics and other management disciplines, you will gain a profound understanding of business and corporate strategy and their sub-disciplines, and/or entrepreneurship.

Overall, as a Strategic Management specialist, students will develop an ability to identify, simplify, and analyze highly complex business problems, to strategize implementable solutions, and to articulate the key elements of their strategic reasoning in a simple, compelling and engaging way to a non-expert audience. Indeed, the strategic mindset that students will gain from this specialty will help them successfully navigate the stormy waters of business, whether they plan a career as a management consultant, economic consultant, manager in private-sector, public sector and non-profit organizations, investment banker, or entrepreneur.

Both streams have a non-co-op and a co-op component. Co-op students should see the section regarding work term requirements for specific details on courses required before each work term.

Enrolment Requirements
Enrolment in this Program is limited.

1. Students enrolling directly from high school are admitted on the basis of academic performance. They must have completed Grade 12 English and Grade 12 Calculus.

Course Guidelines for Students Admitted to B.B.A. Programs Directly from High School Students must complete the following courses in their first year of study: MGEA02H3, MGEA06H3, MATA34H3, MGAB01H3, MGAB02H3, MGHA12H3, MGMA01H3 and MGTA38H3.

2. Students requesting admission after first year must request ONLY ONE Management Subject POSt on ACORN. Students may apply at the end of the Winter semester and/or at the end of the Summer semester. Application for admission will be considered only for the round during which the student has made the Subject POSt request.

The minimum Cumulative Grade Point Average (CGPA) for Program admission is calculated for each application period, and is based on University of Toronto courses only. Decisions are made when all grades have been received.

Students must have completed the following courses (or their equivalent): MGEA02H3, MGEA06H3, and MATA34H3. However, [[MATA29H3 or MATA30H3 or MATA31H3 or (MATA32H3)] and [(MATA33H3) or MATA35H3 or MATA36H3 or MATA37H3]] may also be used to satisfy the calculus requirement. None of the courses listed above (or their equivalent) can be designated as CR/NCR. Of the total credits that students have completed when they apply, at least 4.0 credits just in University of Toronto courses that have been graded (i.e., not designated as CR/NCR). Students may apply until they have completed up to 10.0 credits. Students who have completed more than 10.0 credits will not be considered for admission to the Program.

In order to remain in the Program, students must maintain a CGPA of 2.0 or higher after having attempted at least 4.0 credits. Students whose CGPA falls below 2.0 will be removed from the Program. Students removed from the program for this reason may request reinstatement if they complete at least 2.0 credits (none of which can be designated as CR/NCR) in the following session and raise their CGPA to at least 2.0. This opportunity will be provided only once.

To complete the program, a student must meet the course requirements described below. The program requirements comprise a core 10.5 credits, and an additional 3.5 credits for the Management Strategy stream (14.0 credits total.)

Note: A single course may only be used once to fulfill one of the following program requirements.

Core (10.5 credits):

1. (7.0 credits):
MGMA01H3 Principles of Marketing
MGTA38H3 Management Communications
MGAB01H3 Introductory Financial Accounting I
MGAB02H3 Introductory Financial Accounting II
MGAB03H3 Introductory Management Accounting
MGFB10H3 Principles of Finance
MGHA12H3 Human Resource Management
MGHB02H3 Managing People and Groups in Organizations
MGMB01H3 Marketing Management
MGFC10H3 Intermediate Finance
MGHC02H3 Management Skills
MGOC10H3 Analytics for Decision Making
MGOC20H3 Operations Management
and
0.5 credit at the D-level in either Management or Economics for Management Studies courses

2. (0.5 credit):
MATA34H3
or
[[MATA29H3/MATA30H3/MATA31H3/(MATA32H3)] and [(MATA33H3)/MATA35H3/MATA36H3/MATA37H3]]

3. (3.0 credits):
MGEA02H3 Introduction to Microeconomics: A Mathematical Approach
MGEA06H3 Introduction to Macroeconomics: A Mathematical Approach
MGEB02H3 Price Theory: A Mathematical Approach
MGEB06H3 Macroeconomic Theory and Policy: A Mathematical Approach
MGEB11H3 Quantitative Methods in Economics I
MGEB12H3 Quantitative Methods in Economics II

Management Strategy Stream (3.5 credits):

4. Foundation Courses - 1.0 credit:
MGSB01H3 Introduction to Strategy
MGSC01H3 Strategic Management I

5. Concentration Courses – 1.5 credits from:
MGSC05H3 The Changing World of Business-Government Relations
MGSC10H3 Business Strategy in the Digital Age
MGSC14H3 Management Ethics
MGSC35H3 Innovation
MGSD05H3 Strategic Management II
MGSD40H3 Corporate Social Responsibility
MGEC11H3 Introduction to Regression Analysis

Based on courses selected, students can obtain the following concentrations within the Management Strategy stream:

Quantitative Strategy and Analysis:
MGSC10H3, MGEC11H3 and MGSD55H3

Technology Strategy:
MGSC35H3, MGSC10H3 and [MGSD55H3 or MGSD15H3]

Strategy, Government and Society:
MGSC05H3, MGSC14H3 and MGSD40H3

General Strategic Management:
MGSD05H3 and 1.0 credit from list of concentration courses from requirement 5

6. Advanced Course – 0.5 credit:
MGSD01H3 Senior Seminar in Strategic Management

7. Elective Courses – 0.5 credit from:
Either the concentration courses listed in requirement 5, provided it has not been used for any other requirement, or:
MGSB22H3 Entrepreneurship

MGSC03H3 Public Management
MGSC12H3 Narrative and Management
MGSC20H3 Consulting and Contracting: New Ways of Work
MGSC30H3 The Legal Environment of Business I
MGSD24H3 New Venture Creation and Planning
MGSD30H3 Intellectual Property Law
MGEC11H3 Introduction to Regression Analysis
MGEC41H3 Industrial Organization
MGED43H3 Organization Strategies

Note: In selecting options and electives, students should refer to the guidelines for program breadth and depth found in the Degree Requirements section of the UTSC *Calendar*.

Calendar Section: Management

SPECIALIST PROGRAM IN STUDIO ART (ARTS) - SCSPE11262

Undergraduate Advisor (General): Email: studio-program-supervisor@utsc.utoronto.ca

Enrolment Requirements
Enrolment in the Specialist in Studio Art is limited. Students must apply to enter the program after completing four credits including VPSA62H3 and VPSA63H3. Decisions are made on program admissions only twice a year, in May and August, and are based on student requests submitted to the Office of the Registrar through ACORN. Admission is determined on the basis of a student's overall GPA and grades in VPSA62H3 and VPSA63H3. For students applying after 8.0-10.0 credits, admission will be based on the overall GPA and grades in VPS courses taken.

Program Requirements
This program requires the completion of 14.0 credits, including 4.0 credits at the C-or D-level of which at least 1.0 credit must be at the D-level.

1. 2.5 credits as follows:
VPSA62H3 Foundation Studies in Studio
VPSA63H3 But Why is it Art?
VPSB01H3 The Artist
VPSB56H3 Digital Studio I
VPHA46H3 Ways of Seeing: Introduction to Art Histories

2. 3.5 credits at VPSB-level courses, 1.0 credits of which should be from the following:
VPSB58H3 Video I
VPSB59H3 Sculpture I
VPSB70H3 Drawing I
VPSB73H3 Curatorial Perspectives I

3. 1.0 additional credits from the following:
VPSB02H3 The Image Culture
CITA01H3 Foundations of City Studies
ENGA03H3 Introduction to Creative Writing
ENGB12H3 Life Writing
ENGB38H3 The Graphic Novel
FLMA70H3 How to Read a Film
FLMB75H3 Cinema and Modernity
MDSA10H3 Media Foundations
MDSA13H3 Media Histories
MDSB32H3 Media and Globalization
MDSB24H3 Kids These Days: Youth, Language and Media
WSTA01H3 Introduction to Women's and Gender Studies

4. 1.5 additional credits in VPH, of which 0.5 credit must be at the C-level

5. 4.5 credits in VPSC-level, of which 2.0 credits must be from the following:

VPSC85H3 Essential Skills for Emerging Artists
VPSC90H3 Theory and Practice: Art in a Globalizing World

VPSC91H3 Theory and Practice: Art and the Body
VPSC92H3 Theory and Practice: Art and Materials
VPSC93H3 Theory and Practice: Art and the Everyday
VPSC94H3 Theory and Practice: Art and Place
VPSC95H3 Theory and Practice: Art and Social Justice

6. 1.0 credits as follows:

VPSD56H3 Advanced Exhibition Practice
VPSD63H3 Independent Study in Studio: Thesis

Calendar Section: Studio Art

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