STATISTICS, B.SC. MAJOR

Degree Requirements

Four Year Major (Including Co-operative Option if Selected) [1]

Course	Title	Hours
Year 1		
STAT 1150	Introduction to Statistics and Computing [2]	3
MATH 1220	Linear Algebra 1 [2]	3
MATH 1230	Differential Calculus [2]	3
MATH 1232	Integral Calculus [2,4]	3
MATH 1240	Elementary Discrete Mathematics	3
	Hours	**15**
Years 1-2		
The following must be completed in Year 1 or Year 2:		
COMP 1010	Introductory Computer Science 1	3
COMP 1020	Introductory Computer Science 2	3
STAT 2150	Statistics and Computing (C+)	3
STAT 2300	Principles of Data Collection	3
6 credit hours from the Faculty of Arts, which should include the required "W" course		6
6 credit hours from the lists of Mathematics and Computer Science options for the Major program (Lists B and C below)		6
12 credit hours of elective courses [3]		12
	Hours	**36**
Year 2		
STAT 2400	Introduction to Probability 1	3
STAT 2800	Introduction to Probability 2	3
MATH 2720	Multivariable Calculus	3
	Hours	**9**
Year 3		
STAT 3100	Introduction to Statistical Inference	3
STAT 3150	Statistical Computing	3
STAT 3450	Linear Models	3
STAT 3690	Multivariate Analysis	3
	Hours	**12**
Years 3-4		
24 credit hours from the list of Statistics options for the Major program (List A below), with at least 15 credit hours at the 4000 level		24
9 credit hours from the lists of Statistics, Mathematics and Computer Science options for the Major program (Lists A, B and C below)		9
15 credit hours of elective courses [3]		15
Co-op Requirements (if selected):		
SCI 3980	Co-operative Education Work Term 1	0
SCI 3990	Co-operative Education Work Term 2	0
SCI 4980	Co-operative Education Work Term 3	0
SCI 4990	Co-operative Education Work Term 4 (if a 4th work term is selected)	0
	Hours	**48**
	Total Hours	**120**

1 IMPORTANT: The four year Major program need not be completed in the manner prescribed in the grid above. The grid indicates one possible arrangement of the required courses and is meant to be a guide around which students can plan their program.

2 The following substitutes are allowed:
- MATH 1300 (B) in place of MATH 1220,
- MATH 1500 (B) or MATH 1510 (B) in place of MATH 1230,
- MATH 1700 (B) or MATH 1710 (B) in place of MATH 1232,
- MATH 1690 in place of MATH 1230 and MATH 1232;
- MATH 2720 in place of MATH 2150;
- STAT 1000 and STAT 2000 (B) in place of STAT 1150.

3 Although not required, students are encouraged to select some of their electives from traditional fields of application in Statistics such as Biological Sciences, Microbiology, Actuarial Mathematics, Economics, Psychology, or Sociology.

4 Amended August 25, 2021

(Letters in brackets indicate minimum prerequisite standing for further study.)

Optional Courses for the Major Program

Course	Title	Hours
List A: Statistics Options for the Major Program		
STAT 3030	Introduction to Stochastic Processes	3
STAT 3170	Statistical Quality Control	3
STAT 3380	Introduction to Nonparametric Statistics	3
STAT 3490	Time Series Analysis	3
STAT 3550	Nonlinear Regression Models	3
STAT 4100	Statistical Inference	3
STAT 4150	Bayesian Analysis and Computing	3
STAT 4170	Lifetime Data Analysis	3
STAT 4250	Statistical Learning	3
STAT 4520	Sampling Techniques	3
STAT 4530	Design of Experiments	3
STAT 4630	Stochastic Processes	3
STAT 4700	Statistical Consulting	3
STAT 4900	Advanced Topics in Statistics	3
STAT 4910	Advanced Topics in Statistics	3
List B: Mathematics Options for the Major Program		
MATH 2030	Combinatorics 1	3
MATH 2070	Graph Theory 1	3
MATH 2080	Introduction to Analysis	3
MATH 2090	Linear Algebra 2	3
MATH 2160	Numerical Analysis 1	3
MATH 2180	Real Analysis 1	3
MATH 2740	Mathematics of Data Science	3
MATH 3330	Computational Algebra	3
MATH 3340	Complex Analysis 1	3
MATH 3360	Combinatorics 2	3
MATH 3440	Ordinary Differential Equations	3

MATH 3460	Partial Differential Equations	3
MATH 3470	Real Analysis 2	3
MATH 3490	Optimization	3
MATH 3610	Introduction to Mathematical Modelling	3
MATH 4370	Linear Algebra and Matrix Analysis	3
MATH 4390	Numerical Approximation Theory	3
List C: Computer Science Options for the Major Program		
COMP 2080	Analysis of Algorithms	3
COMP 2140	Data Structures and Algorithms	3
COMP 3170	Analysis of Algorithms and Data Structures	3
COMP 3190	Introduction to Artificial Intelligence	3
COMP 3380	Databases Concepts and Usage	3
COMP 3820	Introduction to Bioinformatics Algorithms	3
COMP 4190	Artificial Intelligence	3
COMP 4360	Machine Learning	3
COMP 4380	Database Implementation	3
COMP 4420	Advanced Design and Analysis of Algorithms	3
COMP 4710	Introduction to Data Mining	3