

# MATHEMATICS, B.SC. DOUBLE HONOURS

## Degree Requirements

### Double Honours (Including Co-operative Option if Selected) <sup>1</sup>

A student may elect Honours in Mathematics (including Co-operative Option) and one other field, subject to the approval of both departments. The Mathematics prescription for a Double Honours program is as indicated below. It is a minimum of 120 credit hours, comprising of courses listed below, and the required courses from the other department.

Course	Title	Hours
<b>Year 1</b>		
MATH 1220	Linear Algebra 1 <sup>2</sup>	3
MATH 1230	Differential Calculus <sup>2</sup>	3
MATH 1232	Integral Calculus (B) <sup>2</sup>	3
MATH 1240	Elementary Discrete Mathematics	3
STAT 1150	Introduction to Statistics and Computing <sup>2</sup>	3
COMP 1010	Introductory Computer Science 1 <sup>2</sup>	3
6 credit hours from the Faculty of Arts, which should include the required "W" course		6
<b>Hours</b>		<b>24</b>
<b>Year 2</b>		
MATH 2020	Algebra 1	3
MATH 2080	Introduction to Analysis	3
MATH 2090	Linear Algebra 2	3
MATH 2150	Multivariable Calculus	3
MATH 2180	Real Analysis 1	3
6 credit hours from the following list:		6
MATH 2030	Combinatorics 1	
MATH 2040	Curves and Surfaces	
MATH 2070	Graph Theory 1	
MATH 2160	Numerical Analysis 1	
MATH 2170	Number Theory 1	
<b>Hours</b>		<b>21</b>
<b>Year 3</b>		
MATH 3320	Algebra 2	3
MATH 3340	Complex Analysis 1	3
MATH 3390	Introduction to Topology	3
MATH 3440	Ordinary Differential Equations	3
MATH 3474	Real Analysis 2	3
MATH 3476	Real Analysis 3	3
<b>Hours</b>		<b>18</b>
<b>Years 3-4</b>		
<b>Co-op Requirements (if selected):</b>		
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
<b>Hours</b>		<b>0</b>
<b>Year 4</b>		
15 credit hours from the following (if not already taken in 2nd year):		15
MATH 2030	Combinatorics 1	
MATH 2070	Graph Theory 1	
MATH 2160	Numerical Analysis 1	
MATH 2170	Number Theory 1	
All Year 3 and 4 mathematics courses of which at least 9 credit hours must be 4000 level		
<b>Hours</b>		<b>15</b>
<b>Total Hours</b>		<b>78</b>

<sup>1</sup> These courses may not be used for credit in this program: MATH 1010, MATH 1018, MATH 1020, FA 1020, MATH 1080, MATH 1090.

<sup>2</sup> Students are strongly advised to take MATH 1220, MATH 1230 and MATH 1232.

The following substitutions are allowed (but not advised), provided the grades indicated in brackets are achieved:

- MATH 1210 (A) or MATH 1300 (A) in place of MATH 1220,
- MATH 1500 (A) or MATH 1510 (A) in place of MATH 1230,
- MATH 1700 (A) or MATH 1710 (A) in place of MATH 1232.

With permission of the department, students may be able to substitute STAT 1000 and STAT 2000 in place of STAT 1150. COMP 1012 may be used in lieu of COMP 1010.

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