

# ACTUARIAL MATHEMATICS, B.SC. HONOURS

## Actuarial Mathematics Honours Entrance, Continuation, and Graduation Requirements

To **enter** the program, a student must have completed a minimum of 24 credit hours with a minimum DGPA of 3.00, and also obtained a minimum grade of "B" in one of the courses listed in Year 1 of the program grid. All of the courses listed in Year 1 of the program grid are program requirements and students are strongly urged to take them in the first year.

To **continue** in the Actuarial Mathematics Honours program, students must maintain a minimum DGPA of 3.00 and complete a minimum of 9 credit hours during each Fall and Winter Term.

To **graduate** with the B.Sc. Honours degree, a student must achieve a minimum DGPA of 3.00, a minimum grade of "C+" in each of the Honours Program Specific courses below, and a minimum grade of "C" on all remaining courses that contribute to the 120 credit hours of the degree.

## Honours Program Specific Courses

Students must achieve a minimum grade of "C+" in each of the following for both prerequisite purposes and graduation requirements.

Course	Title	Hours
ACT 2020	Economic and Financial Applications	3
ACT 2120	Interest Theory	3
ACT 2210	Introduction to Risk Management	3
ACT 3130	Actuarial Models 1	3
ACT 3230	Actuarial Models 2	3
ACT 3340	Financial Derivatives for Actuarial Practice	3
One of:		6
ACT 3630	Models for Life Contingencies	
ACT 3130 & ACT 3230	Actuarial Models 1 and Actuarial Models 2	
ACT 4010	Regression Modeling in Actuarial Science	3
ACT 4020	Short Term Actuarial Mathematics I	3
ACT 4030	Short Term Actuarial Mathematics II	3
ACT 4060	Actuarial Aspects of Investment Practice	3
ACT 4160	Introduction to Property and Casualty Insurance Industry	3

## Degree Requirements

### Honours

Course	Title	Hours
<b>Year 1</b>		
For entry to this program a student requires a minimum grade of "B" in one of the courses below (excluding elective credits).		
ECON 1010	Introduction to Microeconomic Principles	3
ECON 1020	Introduction to Macroeconomic Principles	3
MATH 1220	Linear Algebra 1 <sup>1</sup>	3

MATH 1230	Differential Calculus <sup>1</sup>	3
MATH 1232	Integral Calculus <sup>1</sup>	3
MATH 1240	Elementary Discrete Mathematics	3
STAT 1150	Introduction to Statistics and Computing <sup>1</sup>	3
STAT 2150	Statistics and Computing	3
6 credit hours of electives		6
<b>Hours</b>		<b>30</b>

### Year 2

ACT 2020	Economic and Financial Applications	3
ACT 2120	Interest Theory	3
ACT 2210	Introduction to Risk Management	3
STAT 2400	Introduction to Probability 1	3
STAT 2800	Introduction to Probability 2	3
ACC 1100	Introductory Financial Accounting <sup>2</sup>	3
FIN 2200	Corporate Finance <sup>2</sup>	3
MATH 2720	Multivariable Calculus	3
GMGT 2010	Business Communications <sup>3</sup>	3
3 credit hours of electives		3
<b>Hours</b>		<b>30</b>

### Year 3

One of:		6
ACT 3630	Models for Life Contingencies	
ACT 3130 & ACT 3230	Actuarial Models 1 and Actuarial Models 2	
ACT 3340	Financial Derivatives for Actuarial Practice	3
ACT 4020	Short Term Actuarial Mathematics I <sup>4</sup>	3
ACT 4030	Short Term Actuarial Mathematics II <sup>4</sup>	3
STAT 3030	Introduction to Stochastic Processes	3
STAT 3100	Introduction to Statistical Inference	3
9 credit hours of electives <sup>5</sup>		9
<b>Hours</b>		<b>30</b>

### Year 4

ACT 4010	Regression Modeling in Actuarial Science	3
ACT 4060	Actuarial Aspects of Investment Practice	3
ACT 4160	Introduction to Property and Casualty Insurance Industry	3
STAT 3450	Linear Models <sup>4</sup>	3
STAT 3490	Time Series Analysis <sup>4</sup>	3
MSCI 2150	Introduction to Management Sciences	3
12 credit hours of electives <sup>5</sup>		12
<b>Hours</b>		<b>30</b>
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> The following substitutions are allowed:

- MATH 1300 (C) or MATH 1310 in place of MATH 1220 (C),
- MATH 1500 (B) or MATH 1510 (B) in place of MATH 1230 (C),
- MATH 1700 (B) or MATH 1710 (B) in place of MATH 1232 (C),
- STAT 1000 (C) and STAT 2000 (B) in place of STAT 1150.

<sup>2</sup> Students are strongly urged to complete ACC 1100 in Year 1 when possible. FIN 2200 may be taken in Year 2, 3 or 4; however, it is strongly recommended that it be completed in Year 2. Note that ACC 1100 is a prerequisite for FIN 2200.

<sup>3</sup> GMGT 2010 fulfills the written English requirement.

<sup>4</sup> STAT 3450, STAT 3490, ACT 4020 and ACT 4030 may be taken in Year 3 or 4.

<sup>5</sup> It is recommended that electives in Year 3 and Year 4 be chosen from Actuarial Mathematics, Business courses, Computer Science, Economics, Mathematics (3000 or 4000 level) and Statistics (4000 level courses). Other electives may be selected through consultation with the program director. Examples include:

- *Year 3*: FIN 3410, FIN 3450, FIN 3480, MSCI 3400, STAT 3150, STAT 3550, STAT 3690.
- *Year 4*: FIN 4240, STAT 4100, STAT 4150, STAT 4250, STAT 4630.