Explore New Opportunities!

- Actuarial Science
- Financial Modelling
- Statistics

Our degrees open doors to business, finance, research, industry, health care & more...

For more information visit: www.stats.uwo.ca
Potential Areas of Employment for Students Graduating from our Programs

**Actuarial Science**
1. **Insurance Industry** - Life and Property and Casualty Insurance Companies
2. **Employee Benefits Consulting** – particularly Retirement (Pension) & Group Benefits Consulting
3. **Other Financial Institutions** such as Investment firms, Banks and Trust Companies
4. **Government** – this work may involve supporting the ongoing analysis of the various government social security programs and any related financial modeling, including looking at demographic trends and implications
5. **Education** – Research and/or teaching
6. **Several other areas** - include actuarial recruiting for the forensic sciences and employers in the Environmental Analysis sector, as well as other employers looking for expertise in financial modeling and/or risk management

Companies from the above sectors come to our campus annually to recruit students from our actuarial science programs. Opportunities exist both in Canada and abroad, particularly in the U.S. Recently there has been increased interest in recruiters from the U.S. who, in addition to Canadian employers, are now very actively recruiting our students. Websites of interest are [www.beanactuary.org/](http://www.beanactuary.org/), as well as the Canadian Institute of Actuaries website ([www.cia-ica.ca/home](http://www.cia-ica.ca/home)) and the Society of Actuaries website ([www.soa.org/](http://www.soa.org/)).

**Statistics**
1. **Government** - both at the federal (Stats Canada and Health Welfare) and provincial levels
2. **Public and Private Statistical Consulting firms**
3. **Biostatistical and Pharmaceutical fields**
4. **Various sectors of the Financial Industry**, including banks, investment firms and insurance companies. Students with Statistics degrees may be hired for several different role types, including marketing research & analysis. Recently, several have been recruited for opportunities in the financial modeling area
5. **Public and Private Industry employment opportunities exist** for those wishing to specialize in areas such as quality control and/or operations research areas. Potential employers here would include well known firms such as 3M, GM, Bell, and IBM amongst others.
6. **Education and other areas** – include Research and/or teaching, as well as employers looking for expertise in financial modeling and/or risk management

Several companies from the above sectors including **Stats Canada**, come to our campus annually to recruit students from our respective statistical science programs. Opportunities exist both in Canada and abroad, particularly in the U.S. The Statistical Society of Canada (SSC) posts job opportunities in the statistical field on their website at [www.ssc.ca](http://www.ssc.ca) Students possessing an Honors degree in Statistics will be well prepared to continue their education at the Master’s level.

**Financial Modeling**
1. **Banks** - Analyst in Currencies and Commodities, Investments, Risk Management, Securities
2. **Brokerage Firms**
3. **Education** – Research and/or teaching
4. **Pension Fund Management Companies**
5. **Insurance Firms**

This program is designed for people who wish to combine a solid quantitative grounding, chiefly in applied mathematics and in statistical sciences but with a bit of actuarial science as well, with a view to applying this quantitative grounding in a business career. As well as receiving a good quantitative and business-friendly education, graduates of this program will be very well prepared for Master's programs in business administration or in quantitative finance. We also strongly encourage those entering this program to explore the possibility of combining it with an HBA in a five year B.Sc-HBA concurrent degree.
Internship Program

As part of the Science Internship Program, 3rd year students participate in 8 - 16 month career-related placements, before returning to UWO to complete Year 4 of their program.

As a Science intern, you will not only benefit from the paid hands-on work experience, but you will also be mentored by a professional in the field. This interaction will help identify long-term goals, as well as allow you to "try a career on for size." In a number of cases, Internship placements have led to full-time employment upon graduation.

Summer Jobs

Each fall approximately 10 - 12 companies hold recruitment sessions aimed specifically at students enrolled in Statistical and Actuarial Sciences. These employers are typically hiring for both summer and post graduate positions. Our students have the opportunity to attend resume writing and interview workshops in advance of these sessions and learn how to put their best foot forward.

International Exchange Programs

Western is committed to internationalization and encourages all students to become global citizens. By studying on exchange, students learn the dynamics between the developing and the developed world and build familiarity and connections with different world regions. A cosmopolitan worldview is rated as one of the top three skills needed in future leaders & by going on exchange, students gain valuable skills for succeeding in a global economy.

An exchange involves students applying to the program to study at one of the universities with whom Western has an exchange agreement. Students pay regular Western tuition fees to participate, thus not being subjected to international student fees. Full details about the Exchange Program can be viewed at:

http://www.sdc.uwo.ca/int/exchange
### The Department of Statistical and Actuarial Sciences Scholarships
(for students entering year 2 or higher)*

For complete details of the following scholarships go to: [https://studentservices.uwo.ca/secure/Awards/awardsearch.cfm](https://studentservices.uwo.ca/secure/Awards/awardsearch.cfm)

<table>
<thead>
<tr>
<th>Scholarship Name</th>
<th>Details</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class of ’49 Scholarship</td>
<td>One award annually to a first year student who has obtained the highest mark in SS1023a/b and who, in the opinion of the Dept. of Stats &amp; Act Sci has achieved a high overall academic standing. No application required.</td>
<td>$125</td>
</tr>
<tr>
<td>London Life Actuarial Career Scholarship, Three Year Continuing</td>
<td>Awarded annually to a student in second year, pursuing an Honors Specialization or Double Major, including Actuarial Science.</td>
<td>$5,000 annually continuing for 3 years plus 2 x 4 month summer internships</td>
</tr>
<tr>
<td>London Life Actuarial Career Scholarship, Two Year Continuing</td>
<td>Awarded annually to two students in third year, pursuing an Honors Specialization or Double Major, including Actuarial Science.</td>
<td>$5,000 annually continuing for 2 years plus 4 month summer internship</td>
</tr>
<tr>
<td>Manulife Financial Scholarships in Actuarial Sciences</td>
<td>Awarded annually to a student in third year of an Honors Specialization module in Actuarial Science or an Honors Degree with contains an Actuarial Science module.</td>
<td>$5,200</td>
</tr>
<tr>
<td>Morneau Shepell Scholarship in Actuarial Science</td>
<td>Awarded annually to a student in second year of an Honors Specialization module in Actuarial Science.</td>
<td>$2,500</td>
</tr>
<tr>
<td>V. M. Joshi Memorial Scholarship</td>
<td>Awarded to any undergraduate in any Honours Statistics program who has maintained minimum 80% average and demonstrates financial need.</td>
<td>$750</td>
</tr>
<tr>
<td>Mercer Human Resource Consulting 125th Anniversary Alumni Scholarship</td>
<td>Awarded to a full-time student in year 3 of an Honors degree with an Honors Specialization or Double Major in Actuarial Science based on a minimum 80% average, financial need, and university and community involvement.</td>
<td>$1,000 continuing for 2 years</td>
</tr>
<tr>
<td>The Honourable Company of Freeman of the City of London, England Scholarship</td>
<td>Awarded to a graduate or undergraduate student in any program of any year who has been accepted to pursue course work or significant scholarly activity for a minimum of three months at a university or college in Greater London Authority or the City of London, England. Preference will be given to graduate students whose scholarly pursuits would benefit from the opportunity to travel and live in London, England. However, undergraduate students applying for an approved exchange program, study abroad or other international experience to take place at a university or college in London, England also may apply. The Honourable Company will endeavour to introduce the student to a Guild event in the City of London, England. Please contact the International Exchange Program at: <a href="mailto:exchange@uwo.ca">exchange@uwo.ca</a> or 519-661-2111 ext. 85196 for application details.</td>
<td>Value: 1 at $5,000 annually ($1,000 of the award to support travel cost, including the cost of attendance at the Annual Dinner of the Honourable Company in Toronto.)</td>
</tr>
</tbody>
</table>

### The Department of Statistical and Actuarial Sciences - Awards

<table>
<thead>
<tr>
<th>Award Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Northern Life Assurance Gold Medal</td>
<td>Awarded to a full time student in a Statistics program with the highest average in their graduating year.</td>
</tr>
<tr>
<td>The U.W.O. Gold Medals in Honors Actuarial Science and Statistical Programs</td>
<td>Awarded to a full time student in the respective Honors program with the highest graduating average, minimum 80%.</td>
</tr>
<tr>
<td>The John Mereu Book Prize</td>
<td>Awarded to the student with the highest average in the life contingency courses (which now includes AS327, AS329 &amp; AS422).</td>
</tr>
</tbody>
</table>

*in addition to UWO entrance scholarships*
What is an Actuary?

The future is full of uncertainty. Some of the events that can happen are undesirable. "Risk" is the possibility that an undesirable event will occur. Actuaries are experts in:

- evaluating the likelihood of future events,
- designing creative ways to reduce the likelihood of undesirable events,
- decreasing the impact of undesirable events that do occur.

The impact of undesirable events can be both emotional and financial. Reducing the likelihood of these events helps relieve emotional pain. But some events, such as car accidents or house fires, cannot be totally avoided. So, reducing the financial impact of these adverse events is very important. Actuaries are the leading professionals in finding ways to manage risk. It takes a combination of strong analytical skills, business knowledge and understanding of human behaviour to design and manage programs that control risk.

Where do actuaries work?

- Insurance Companies
- Employee Benefits Consulting Companies
- Reinsurance Companies
- Investment Firms
- Trust Companies/Banks
- Governments
- Universities: Research/Teaching

What should I have taken in first year?

- Calculus 1000A/B or 1500A/B
- Calculus 1501A/B or Calculus 1301A/B with a mark of at least 85%
- Math 1600A/B
- Economics 1021A/B and Economics 1022A/B (can complete in upper year)

Why choose Actuarial Science?

- “Actuary” regularly appears on the list of top five professions
- Internship program: you will not only benefit from the paid hands-on work experience, but you will also be mentored by a professional in the field
- Dynamic undergraduate student association
- High faculty/student ratio, undergraduate opportunities for summer funded research
- Combined Ivey HBA degree option
- Some courses may count towards professional accreditation requirements
Honors BSc: Specialization in Actuarial Science (20.0 courses)

This is a guide only. For complete information, see the current Online Academic Calendar

Last updated July 11, 2016

<table>
<thead>
<tr>
<th>Year 1 (5.0 Courses)</th>
<th>Graduation Requirements</th>
</tr>
</thead>
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<tr>
<td>Calculus 1000A/B or 1500A/B (or the former Calculus 1100 A/B)</td>
<td>Breadth Requirement:</td>
</tr>
<tr>
<td>Calculus 1501A/B or Calculus 1301A/B with a mark of at least 85%</td>
<td>• At least 1.0 course from each of Category A, B, and C as listed in the Academic Calendar.</td>
</tr>
<tr>
<td>Math 1600A/B or the former Linear Algebra 1600A/B</td>
<td>Essay Requirement:</td>
</tr>
<tr>
<td>Economics 1021A/B and Economics 1022A/B</td>
<td>• 2.0 essay courses (1.0 must be senior course). Any Actuarial, Financial Modelling or Statistical Sciences essay course taken can be used towards this requirement.</td>
</tr>
<tr>
<td>0.5 other principal course</td>
<td>Senior Courses:</td>
</tr>
<tr>
<td>2.0 options</td>
<td>• 13.0 senior courses (numbered 2000-4999)</td>
</tr>
</tbody>
</table>

**NOTE:** At least 1.0 course must be chosen from two of Category A, B, and C as listed in the Academic Calendar (e.g. 1.0 from A and 1.0 from C)

<table>
<thead>
<tr>
<th>Admission to Honors Specialization Module:</th>
<th>Average Requirements:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete first year (5.0 courses) with no failures including:</td>
<td>• Minimum overall average of 65% on the 20.0 courses</td>
</tr>
<tr>
<td>• Minimum average of 70% on 3.0 principal courses with no mark less than 60% in any of the 3 principal courses:</td>
<td>• Minimum cumulative modular average of 70% and a minimum mark of 60% in each course of the module</td>
</tr>
<tr>
<td>o Calculus 1000A/B or 1100A/B or 1500A/B</td>
<td>• Passing grade in each course</td>
</tr>
<tr>
<td>o Calculus 1501A/B or Calculus 1301A/B with a mark of at least 85%</td>
<td>• Minimum cumulative modular average of 60% in any additional Major or Minor module completed</td>
</tr>
<tr>
<td>o Mathematics 1600A/B or the former Linear Algebra 1600A/B</td>
<td>Residency Requirement:</td>
</tr>
<tr>
<td>o Economics 1021A/B and Economics 1022A/B</td>
<td>• Minimum of 15.0 courses must be completed at Western University, as well as the majority of your modular courses</td>
</tr>
<tr>
<td>o 0.5 other principal course</td>
<td>To graduate with a Bsc, a total of at least 11.0 courses must be taken from the Faculty of Science.</td>
</tr>
</tbody>
</table>

Revised 1st year courses: AS1021A/B, Business 1220, Philosophy 1200

**NOTE 1:** Math 1600A/B is normally taken in Year 1. If not taken in Year 1, it must be completed in the first term of Year 2. AM1411A/B may be substituted for Math 1600 A/B.

**NOTE 2:** AM1413 may be substituted for the Calculus course requirements.

**NOTE 3:** Please note: Economics 1021A/B and Economics 1022A/B, if not taken in first year, must be completed in one of your upper years.

<table>
<thead>
<tr>
<th>MODULE (10.5 Courses) **</th>
<th>Department Recommendation for order in which modular courses should be taken</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5 courses: Actuarial Science 2553A/B, 2427A/B, 3429A/B, 3431A/B, 4426F/G.</td>
<td>Second Year</td>
</tr>
<tr>
<td>1.5 courses: Financial Modeling 2555A/B, 2557A/B, 3520A/B.</td>
<td>FM2555A Corporate Finance</td>
</tr>
<tr>
<td>0.5 courses: Calculus 2402A/B.</td>
<td>Calculus 2402A Calculus with Analysis for Statistics</td>
</tr>
<tr>
<td>0.5 course from: Actuarial Science 3424A/B or 4824A/B.</td>
<td>SS2587A Probability and Statistics I</td>
</tr>
<tr>
<td>1.0 courses from: Actuarial Science at the 4000 level or any other course at the 4000 level approved by the Department of Statistical and Actuarial Sciences.</td>
<td>AS2427B Life Contingencies I</td>
</tr>
<tr>
<td>(Advanced Financial Modeling FM4521F/G is highly recommended &amp; can be used here).</td>
<td>FM2557B Financial Markets &amp; Investments</td>
</tr>
<tr>
<td>Calculus 2402A/B may be replaced by either (Calculus 2502A/B and Calculus 2503A/B) or (Calculus 2502A/B and Mathematics 2123A/B).</td>
<td>SS2503B Advanced Mathematics for Statistical Applications</td>
</tr>
<tr>
<td>When such a replacement occurs, the module will include 11.0 courses.</td>
<td>SS2858B Probability &amp; Statistics II</td>
</tr>
</tbody>
</table>

**OPTIONS (4.5 Courses)**

Any additional Major or Minor module may be taken. You must complete this additional module with a minimum mark of 60%.

**Notes:**
- Courses common to more than one module taken require substitution
- If you’re considering completing another module, the other module must be from a different department

<table>
<thead>
<tr>
<th>Progression Requirements</th>
<th>** One of AS3424A/B or 4824A/B is required for the module</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum cumulative modular average of 70%</td>
<td>Fourth Year</td>
</tr>
<tr>
<td>Minimum mark of 60% in each course of module</td>
<td>AS4426F Actuarial Practice I</td>
</tr>
<tr>
<td>Passing grade in each course</td>
<td>SS4861B Time Series</td>
</tr>
</tbody>
</table>

0.5 of AS3424A/B or 4824A/B (if not previously completed) 1.0 Actuarial Science courses at the 4000 level, or other 4000 level dept. approved course. FM4521A/B is highly recommended and may be counted toward the 1.0 Actuarial Science course at the 4000 level

**Two of the following subject name/number changes were made effective September 2014. Equivalency is automatic when determining the fulfilment of modular requirements:**

AM2503→SS2503; AS2555→FM2555; AS2557→FM2557; SS3520→FM3520; SS4521→FM4521; SS4998→FM4998
BSc or BA (4 year only): Major in Actuarial Science (20.0 courses)

This is a guide only. For complete information, see the current online Academic Calendar

Last updated July 11, 2016

**Year 1 (5.0 Courses)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Minimum Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calculus 1000A/B or 1500A/B (or the former Calculus 1100 A/B)</td>
<td></td>
</tr>
<tr>
<td>Calculus 1501A/B or Calculus 1301A/B with a mark of at least 85%</td>
<td></td>
</tr>
<tr>
<td>Mathematics 1600A/B or the former Linear Algebra 1600A/B</td>
<td></td>
</tr>
<tr>
<td>Economics 1021A/B and Economics 1022A/B</td>
<td></td>
</tr>
<tr>
<td>0.5 other principal course</td>
<td></td>
</tr>
</tbody>
</table>

**Graduation Requirements**

- **Breadth Requirement:** At least 1.0 course from each of Category A, B, and C as listed in the Academic Calendar
- **Essay Requirement:** 2.0 essay courses (1.0 must be senior course). Any Actuarial, Financial Modelling or Statistical Sciences essay course taken can be used towards this requirement.
- **Senior Courses:** 13.0 senior courses (numbered 2000-4999)
- **Average Requirements:** Minimum overall average of 60% on the 20.0 courses, Minimum cumulative modular average of 60% in the major module, Passing grade in each course, Minimum cumulative modular average of 60% in any additional Major or Minor module completed
- **Residency Requirement:** Minimum of 15.0 courses must be completed at Western University, as well as the majority of your modular courses.

To graduate with a BSc, a total of at least 11.0 courses must be taken from the Faculty of Science.

**Admission to the Major Module:**

Complete first year (5.0 courses) with no failures including:

- Minimum grade of 60% in each of:
  - Calculus 1000A/B or 1100A/B or 1500A/B
  - Calculus 1501A/B or Calculus 1301A/B with a mark of at least 85%
  - Mathematics 1600A/B or the former Linear Algebra 1600A/B
  - Economics 1021A/B and Economics 1022A/B
  - 0.5 other principal course

**NOTE:** At least 1.0 course must be chosen from two of Category A, B, and C as listed in the Academic Calendar (e.g. 1.0 from A and 1.0 from C)

**Recommended (but not required) first year courses:** AS1021A/B, Business 1220E, Philosophy 1200

**NOTE 1:** Math1600A/B is normally taken in Year 1. If not taken in Year 1, it must be completed in the first term of Year 2. AM1411A/B may be substituted for Math 1600 A/B.

**NOTE 2:** AM1413 may be substituted for the Calculus course requirements.

**NOTE 3:** Please note: Economics 1021A/B and Economics 1022A/B, if not taken in first year, must be completed in one of your upper years.

**MODULE (6.0 courses)**

- **1.5 courses:** Actuarial Science 2553A/B, 2427A/B, 3429A/B.
- **0.5 courses:** FM2555A.
- **2.5 courses:** Statistical Sciences 2503A/B, 2857A/B, 2858A/B, 2864A/B, 3657A/B.
- **0.5 course:** Calculus 2402A.

**1.0 additional Actuarial Science course** at the 3000 level or higher.

Calculus 2402A/B may be replaced by either (Calculus 2502A/B and Calculus 2503A/B) or (Calculus 2502A/B and Mathematics 2123A/B). When such a replacement occurs, the module will include 6.5 courses.

**OPTIONS (9.0) Courses**

An additional Major or Minor module may be taken here. You must successfully complete this additional module with a minimum mark of 60%.

**Notes:**

- This module can only be used in a 4 year (honor or non-honors) degree
- Most modular course pre-requisites stipulate a minimum grade of 60%
- Courses common to more than one module taken require substitution
- If you're considering completing another module (e.g. double major), the other module must be from a different department

**Progression Requirements**

- Satisfy the progression requirements for the University (Level 1 and Level II as described in the Academic Calendar)

**Second Year**

AS 2553A Mathematics of Financial Analysis
FM 2555A Corporate Finance
Calculus 2402A Calculus with Analysis for Statistics
SS 2857A Probability and Statistics I
AS 2427B Life Contingencies I
SS 2503B Advanced Mathematics for Statistical Applications
SS 2858B Probability and Statistics II
SS 2864B Statistical Programming *

* May be taken in 3rd year

**Third Year**

AS 3429A Life Contingencies II
SS 3657A Intermediate Probability

**Fourth Year**

1.0 Actuarial Science course at 3000 level or higher (students completing a double major may be able to complete these courses in the same year as the recommended modular 3rd year courses)

**Department Recommendation** for order in which modular courses should be taken:

- AS 2553A
- FM 2555A
- AS 2555A
- SS 2857A
- SS 2864B
- SS 2858B
- AS 2427B
- SS 2503B
- SS 3657A
- AS 3429A

**Progression Requirements**

- Satisfy the progression requirements for the University (Level 1 and Level II as described in the Academic Calendar)

**Notes:**

- The following course subject name/number changes have been made effective September 2014. Equivalency is automatic when determining the fulfillment of modular requirements:
  - AM2503→SS2503; AS2555→FM2555
Resume writing seminars & Interview workshops

One-on-one Industry Mentorship Program

Summer Job Seminars

Society of Actuaries Exam Seminars and Help Sessions

SOA Study Manuals

Travel Subsidies for the Annual Actuarial Student National Association Convention

Representation at Monthly Departmental Meetings

Volunteer Opportunities at Seminars, Conferences, and Outreach Events

Bowling Parties, Professor Meet & Greet, Movie Nights, Study Groups, Holiday Parties, and lots more

ASUA provides opportunities to network, make lasting friendships, take on leadership roles, and enrich your undergraduate experience.
What is a Statistician?

Statisticians collect data and analyze it, looking for patterns that explain behaviour or describe the world as it is. They design and build models using data. The models can be used to help understand the world and to make predictions.

Where do statisticians work?

• Banks & Investment Firms
• Chemical & Pharmaceutical Manufacturers
• Colleges/Universities
• Computer Service & Software Firms
• Engineering Firms
• Environmental Agencies
• Government Offices and Labs
• Marketing Firms
• Medical Research Firms
• Psychological Research Firms
• Sports Agencies

What should I have taken in first year?

• Calculus 1000A/B or 1500A/B
• Calculus 1501A/B or Calculus 1301A/B with a mark of at least 85%
• Math 1600A/B

Why choose a Statistics Module?

The world is becoming increasingly data driven, and many jobs in industry, finance, government, and even sports management require a statistics background.

• Internship program: you will not only benefit from the paid hands-on work experience, but you will also be mentored by a professional in the field
• Dynamic undergraduate student association
• High faculty/student ratio, undergraduate opportunities for summer funded research
• Our modules make great combinations with modules in Biology, Psychology, Economics, and many other subjects
• Combined Ivey HBA degree option
• Courses may count towards Statistical Sciences Society education accreditation
Honors BSc: Specialization in Statistical Sciences (20.0 courses)

This is a guide only. For complete information, see the current online Academic Calendar

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<th>Year 1 (5.0 Courses)</th>
<th>Graduation Requirements</th>
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<td>Calculus 1000A/B or 1500A/B or the form 1100A/B</td>
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<td>Mathematics 1600A/B or the former Linear Algebra 1600A/B</td>
<td><strong>Essay Requirement:</strong></td>
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<tr>
<td>1.5 other principal courses</td>
<td>• 2.0 essay courses (1.0 must be senior course). Any Actuarial, Financial Modelling or Statistical Sciences essay course taken can be used towards this requirement.</td>
</tr>
<tr>
<td>2.0 options</td>
<td><strong>Senior Courses:</strong></td>
</tr>
<tr>
<td><strong>NOTE:</strong> At least 1.0 course must be chosen from two of Category A, B, and C as listed in the Academic Calendar (e.g. 1.0 from A and 1.0 from C)</td>
<td>• 13.0 senior courses (numbered 2000-4999)</td>
</tr>
</tbody>
</table>

**Admission to Honors Specialization Module:**
Complete first year (5.0 courses) with no failures including:
- Minimum average of 70% on 3.0 principal courses with no mark less than 60% in any of the 3 principal courses:
  - Calculus 1000A/B or 1100A/B or 1500A/B
  - Calculus 1501A/B or Calculus 1301A/B with a mark of at least 85%
  - Mathematics 1600A/B or the former Linear Algebra 1600A/B
  - 1.5 other principal course

**Recommended (but not required) first year courses:**
Statistics 1023A/B

**NOTE 1:** Math1600A/B is normally taken in Year 1. If not taken in Year 1, it must be completed in the first term of Year 2. AM1411A/B may be substituted for Math 1600A/B.

**NOTE 2:** AM1413 may be substituted for the Calculus course requirements.

**MODULE (9.0 Courses) **

**6.0 courses:** Statistical Sciences 2503A/B, 2857A/B, 2858A/B, 2864A/B, 3657A/B, 3843A/B, 3858A/B, 3859A/B, 3850F/G, 4846A/B or 4853A/B, 4850F/G, 4861A/B.

**0.5 courses:** Calculus 2402A/B.

**1.5 courses from:** Actuarial Science 3424A/B, 4824A/B, 4823A/B, one of Statistical Sciences 4846A/B or 4853A/B.

**1.0 courses from:** Actuarial Science 3424A/B, 4824A/B, 4823A/B, Financial Modelling 3520A/B, 3613A/B, 3817B, AM3815A/B, any Statistical science course at the 4000 level, or any course at the 4000 level approved by the Department of Statistical and Actuarial Sciences.

Calculus 2402A/B may be replaced by either (Calculus 2502A/B and Calculus 2503A/B) or (Calculus 2502A/B and Mathematics 2123A/B). When such a replacement occurs, the module will include 9.5 courses.

**OPTIONS (6.0 Courses)**
An additional Major or Minor module may be taken here. You must successfully complete this additional module with a minimum mark of 60%.

**Notes:**
- Courses common to more than one module taken require substitution
- If you're considering completing another module, the other module must be from a different department

**Progression Requirements**
- Minimum cumulative modular average of 70%
- Minimum mark of 60% in each course of module
- Passing grade in each option

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**Second Year**
Calculation 2402A Calculus with Analysis for Statistics

SS2857A Probability and Statistics I

SS2503B Advanced Mathematics for Statistical Applications

SS2858B Probability & Statistics II

SS2864B Statistical Programming

**Third Year**
SS3843A Introduction to Study Design

SS3859A Regression

SS3657A Intermediate Probability

SS3850G Data Analysis

SS3858B Mathematical Statistics

0.5 courses from the 1.0 or 1.5 modular course selection list

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**Fourth Year**

SS4850F/G Advanced Data Analysis

SS4861B Time Series

0.5 of SS4846A/B Experimental Design or SS4853A/B Sampling Theory and Methods

1.5 courses from the “1.5 modular course selection list” (1.0 if one of these is taken during 3rd year)

0.5 courses from the “1.0 modular course selection list” (1.0 if none are taken prior to 4th year)

**Breadth Requirement:**
- At least 1.0 course from each of Category A, B, and C as listed in the Academic Calendar.

**Essay Requirement:**
- 2.0 essay courses (1.0 must be senior course). Any Actuarial, Financial Modelling or Statistical Sciences essay course taken can be used towards this requirement.

**Senior Courses:**
- 13.0 senior courses (numbered 2000-4999)

**Average Requirements:**
- Minimum overall average of 65% on the 20.0 courses
- Minimum cumulative modular average of 70% and a minimum mark of 60% in each course of the module
- Passing grade in each course
- Minimum cumulative modular average of 60% in any additional Major or Minor module completed

**Residency Requirement:**
- Minimum of 15.0 courses must be completed at Western University, as well as the majority of your modular courses

To graduate with a BSc, a total of at least 11.0 courses must be taken from the Faculty of Science.

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**Notes:**
**The following course subject/name/number changes have been made effective September 2014. Equivalency is automatic when determining the fulfillment of modular requirements:**

AM2503→SS2503; AM3613→FM3613; AM3817→FM3817; SS3520→FM3520; SS4521→FM4521; SS4998→FM4998
**BSc or BA (4 year only): Major in Applied Statistics (20.0 courses)**

*This is a guide only. For complete information, see the current online Academic Calendar*

Last updated July 11, 2016

<table>
<thead>
<tr>
<th>Year 1 (5.0 Courses)</th>
<th>Graduation Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calculus 1000A/B or 1500A/B (or the former 1100A/B)</td>
<td><strong>Breadth Requirement:</strong></td>
</tr>
<tr>
<td>Calculus 1501A/B or Calculus 1301B with a mark of at least 85%</td>
<td>- At least 1.0 course from each of Category A, B, and C as listed in the Academic Calendar</td>
</tr>
<tr>
<td>Mathematics 1600A/B (or the former Linear Algebra 1600A/B)</td>
<td><strong>Essay Requirement:</strong></td>
</tr>
<tr>
<td>1.0 courses from Psychology 1000, Biology 1001A or 1201A, Biology 1002B or 1202B, or Sociology 1020</td>
<td>- 2.0 essay courses (1.0 must be senior course). Any Actuarial, Financial Modelling or Statistical Sciences essay course taken can be used towards this requirement.</td>
</tr>
<tr>
<td>0.5 other principal course</td>
<td><strong>Senior Courses:</strong></td>
</tr>
<tr>
<td>2.0 options</td>
<td>- 13.0 senior courses (numbered 2000-4999)</td>
</tr>
</tbody>
</table>

**NOTE:** At least 1.0 course must be chosen from two of Category A, B, and C as listed in the Academic Calendar (e.g. 1.0 from A and 1.0 from C)

**Admission to the Major Module:**

Complete first year (5.0 courses) with no failures including:

- Minimum grade of 60% in each of:
  - Calculus 1000A/B, Calculus 1100A/B, or Calculus 1500A/B
  - Calculus 1501A/B or Calculus 1301B with a mark of at least 85%
  - Mathematics 1600A/B (or the former Linear Algebra 1600A/B)
  - 1.0 courses from Psychology 1000, Biology 1001A or 1201A, Biology 1002B or 1202B, or Sociology 1020
  - 0.5 other principal course

**Recommended (but not required) first year courses:** Statistical Science 1024A/B and/or Statistical Science 1023A/B.

**NOTE 1:** Math 1600A/B is normally taken in Year 1. If not taken in Year 1, it must be completed in the first term of Year 2. AM1411A/B may be substituted for Math 1600 A/B.

**NOTE 2:** AM1413 may be substituted for the Calculus course requirements

**MODULE (6.0 courses) **


0.5 course: Calculus 2402A/B.

0.5 course from: Biology 2290F/G, Sociology 2206A/B.

0.5 course: Epidemiology 2200B.

1.0 course from: Applied Mathematics 2402A, 3615A/B, Financial Modelling 3817A/B; Psychology 3800F/G, 3840F/G; Sociology 2236A/B, 4411A/B; Statistical Science 4846A/B, 4850F/G, 4853A/B, or any approved Statistics course at the 3000-level or higher.

0.5 course from: Statistical Science 4846A/B, 4853A/B.

Calculus 2402A/B may be replaced by either Calculus 2502A/B and 2503A/B, or Calculus 2502A/B and Mathematics 2123A/B. When such a replacement occurs, the module will include 6.5 courses.

**OPTIONS (9.0) Courses**

An additional Major or Minor module may be taken here. You must successfully complete this additional module with a minimum mark of 60%.

**Notes:**

- Many modular course pre-requisites stipulate a minimum grade of 60%
- *This module can only be used in a 4 year (honour or non-honors) degree*
- Courses common to more than one module taken require substitution
- if you’re considering completing another module (e.g. double major), the other module must be from a different department

**Progression Requirements**

- Satisfy the progression requirements for the University (Level 1 and Level II as described in the Academic Calendar)

**Department Recommendation** for order in which modular courses should be taken:

**Second Year**

Calculus 2402A Calculus with analysis for Statistics

SS2857A Probability and Statistics I

SS2858B Probability & Statistics II

SS2864B Statistical Programming

Courses from modular selection list(s)

**Third Year**

SS3843A Introduction to Study Design

SS3859A Regression

SS3850F/G Data Analysis

Epidemiology 2200B* Introduction to Epidemiology

Courses from modular selection list(s)

* this course can be taken concurrently with Stats 2858b

**Fourth Year**

Any modular courses not yet completed

** ** The following course subject name/number changes was made effective September 2014. Equivalency is automatic when determining the fulfillment of modular requirements:

AM3817→FM3817; Epidemiology and Biostats 2200b → Epidemiology 2200b
What is Financial Modeling?

Over the past two decades, new quantitative techniques have transformed the investor decision-making process and the financial industry. Today banks, insurance companies, securities and investment firms turn to technical innovation to gain the competitive advantage. Sophisticated mathematical models are used to support investment decisions, to develop and price new securities or to manage risk.

Financial institutions but also energy companies, utilities and corporations with exposure to exchange rate or commodities risk are hiring quantitatively sophisticated employees.

Where do financial mathematicians work?

- Banks
- Analyst in Currencies and Commodities
- Investments
- Risk Management
- Securities
- Brokerage Firms
- Universities - Research/Teaching
- Pension Fund Management Companies
- Insurance Firms

What should I have taken in first year?

- Calculus 1000A/B or 1500A/B
- Calculus 1501A/B or Calculus 1301A/B with a mark of at least 85%
- Math 1600A/B

Why choose a Financial Modelling Module?

- Gateway to dynamic, fascinating, and lucrative positions in the financial industry
- Internship program: you will not only benefit from the paid hands-on work experience, but you will also be mentored by a professional in the field
- Dynamic undergraduate student association
- High faculty/student ratio, undergraduate opportunities for summer funded research
- Great combination with modules in Economics
- combined Ivey HBA degree option
Honors BSc: Specialization in Financial Modelling (20.0 courses)

This is a guide only. For complete information, see the current Online Academic Calendar

Last updated July 11, 2016

<table>
<thead>
<tr>
<th>Year 1 (5.0 Courses)</th>
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<td>Breadth Requirement:</td>
</tr>
<tr>
<td>Calculus 1501A/B or Calculus 1301A/B with a mark of at least 85%</td>
<td>• At least 1.0 course from each of Category A, B, and C as listed in the Academic Calendar.</td>
</tr>
<tr>
<td>Math 1600 A/B</td>
<td>Essay Requirement:</td>
</tr>
<tr>
<td>1.5 other principal course</td>
<td>• 2.0 essay courses (1.0 must be senior course). Any Actuarial, Financial Modelling or Statistical Sciences essay course taken can be used towards this requirement.</td>
</tr>
<tr>
<td>2.0 options</td>
<td>Senior Courses:</td>
</tr>
<tr>
<td>NOTE: At least 1.0 course must be chosen from two of Category A, B, and C as listed in the Academic Calendar (e.g. 1.0 from A and 1.0 from C)</td>
<td>• 13.0 senior courses (numbered 2000-4999)</td>
</tr>
</tbody>
</table>

Admission to Honors Specialization Module:
Complete first year (5.0 courses) with no failures including:
• Minimum average of 70% on 3.0 principal courses with no mark less than 60% in any of the 3 principal courses:
  o Calculus 1000A/B or 1100A/B or 1500A/B
  o Calculus 1501A/B or Calculus 1301A/B with a mark of at least 85%
  o Mathematics 1600 A/B
  o 1.5 other principal course

Recommended (but not required) first year courses:
Economics 1021A/B and 1022A/B, Computer Science 1026 A/B and/or Computer Science 1027A/B, Philosophy 1200

NOTE 1: Math 1600A/B is normally taken in Year 1. If not taken in Year 1, it must be completed in the first term of Year 2. AM1411A/B may be substituted for Math 1600 A/B.

NOTE 2: AM1413 may be substituted for the Calculus course requirements.

MODULE (9.5 Courses) **
3.5 courses: Statistical Sciences 2503A/B, 2857A/B, 2858A/B, 2864A/B, 3657A/B, 3858A/B, 4861A/B.
0.5 courses: Actuarial Science 2553A/B.
3.0 courses: Financial Modelling 2555A/B, 2557A/B, 3520A/B, 3613A/B, 3815A/B.
2.0 courses: Calculus 2402A/B, Applied Math 2811B, 2814F/G, 3815A/B.
0.5 courses from: Applied Math 3611F/G, 4613A/B** 4617A/B**, Financial Modelling 4998F/G/Z, Statistical Sciences 4999F/G/Z or Actuarial Science 4997F/G/Z.

Calculus 2402A/B may be replaced by either (Calculus 2502A/B and Calculus 2503A/B) or (Calculus 2502A/B and Mathematics 2123A/B). When such a replacement occurs, the module will include 10.0 courses.

# May be offered only in odd-numbered academic years.
## May be offered only in even-numbered academic years.

OPTIONS (5.5 Courses)
An additional Major or Minor module may be taken here. You must successfully complete this additional module with a minimum mark of 60%.

Notes:
• Courses common to more than one module taken require substitution
• If you’re considering completing another module, the other module must be from a different department

Progression Requirements
• Minimum cumulative modular average of 70%
• Minimum mark of 60% in each course of module
• Passing grade in each optional course

Department Recommendation for order in which modular courses should be taken:

<table>
<thead>
<tr>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS2553A Mathematics of Financial Analysis</td>
<td>AM3815A Partial Differential Equations I</td>
<td>AM4613A/B Finite Element Methods or AM4617A/B Numerical Solutions</td>
</tr>
<tr>
<td>Cal 2402A Calculus with Analysis for Statistics</td>
<td>FM3613A/B Mathematics of Financial Options**</td>
<td>SS4861A/B Time Series</td>
</tr>
<tr>
<td>FM 2557B Financial Markets and Investments</td>
<td>FM3520B Financial Modelling I</td>
<td></td>
</tr>
<tr>
<td>SS2503B Advanced Mathematics with Statistical Applications</td>
<td>SS3858B Mathematical Statistics</td>
<td></td>
</tr>
<tr>
<td>AM2811B Linear Algebra II</td>
<td>**can be taken in 4th year</td>
<td></td>
</tr>
<tr>
<td>AM2814G Numerical Analysis*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS2557B Probability and Statistics II</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS2864 Statistical Programming*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* can be taken in 3rd year

Graduation Requirements

- **can be taken in 4th year

**The following course subject name/number changes have been made effective September 2014. Equivalency is automatic when determining the fulfillment of modular requirements:
AM2503→SS2503; AM3613→FM3613; AM3817→FM3817; AS2555→FM2555; AS2557→FM2557; SS3520→FM3520; SS4521→FM4521; SS4998→FM4998; AM2813→AM2814F/G
BSc or BA (3 or 4 year): Major in Financial Modelling (20.0 courses)

This is a guide only. For complete information, see the current Online Academic Calendar

Last updated July 11, 2016

### Year 1 (5.0 Courses)

<table>
<thead>
<tr>
<th>Course Options</th>
<th>Graduation Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calculus 1000A/B or 1500A/B (or the former 1500A/B)</td>
<td>Breadth Requirement:</td>
</tr>
<tr>
<td>Calculus 1501A/B or (Calculus 1301B with a mark of at least 85%)</td>
<td>• At least 1.0 course from each of Category A, B, and C as listed in the Academic Calendar</td>
</tr>
<tr>
<td>Mathematics 1600 A/B or the former Linear Algebra 1600 A/B</td>
<td>Essay Requirement:</td>
</tr>
<tr>
<td>1.5 other principal courses</td>
<td>• 2.0 essay courses (1.0 must be senior course). Any Actuarial, Financial Modelling or Statistical Sciences essay course taken can be used towards this requirement.</td>
</tr>
<tr>
<td>2.0 options</td>
<td>Senior Courses:</td>
</tr>
<tr>
<td></td>
<td>• 13.0 senior courses (numbered 2000-4999)</td>
</tr>
</tbody>
</table>

**NOTE:** At least 1.0 course must be chosen from two of Category A, B, and C as listed in the Academic Calendar(e.g. 1.0 from A and 1.0 from C)

### Admission to the Major Module:

Complete first year (5.0 courses) with no failures including:

- Minimum grade of 60% in each of:
  - Calculus 1000A/B or Calculus 1100A/B
  - Calculus 1301A/B with a mark of at least 85% or Calculus 1501A/B
  - Mathematics 1600 A/B
  - 1.5 other principal courses

**Recommended (but not required) first year courses:** Economics 1021A/B and Economics 1022A/B, Philosophy 1200, Computer Science 1026A/B.

**NOTE 1:** Math1600A/B is normally taken in Year 1. If not taken in Year 1, it must be completed in the first term of Year 2. AM1411A/B may be substituted for Math 1600 A/B.

**NOTE 2:** AM1413 may be substituted for the Calculus course requirements.

### Module (6.0 courses) **

<table>
<thead>
<tr>
<th>Course Options</th>
<th>Department Recommendation for order in which modular courses should be taken:</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5 courses: Actuarial Science 2553A/B.</td>
<td>Second Year</td>
</tr>
<tr>
<td>1.5 courses: Calculus 2402A/B, Applied Math 2814F/G, 3815A/B</td>
<td>AS2553A Mathematics of Financial Analysis</td>
</tr>
<tr>
<td>1.5 courses: Financial Modelling 2555A/B, 2557A/B, 3817A/B</td>
<td>FM2555A Corporate Finance</td>
</tr>
<tr>
<td>2.0 courses: Statistical Sciences 2503A/B, 2587A/B, 2858A/B, 3657A/B.</td>
<td>Calc2402A Calculus with Analysis for Statistics</td>
</tr>
<tr>
<td>0.5 course from: Financial Modelling 3613B, Financial Modelling 3520A/B.</td>
<td>SS2857A Probability and Statistics I</td>
</tr>
</tbody>
</table>

Calculation 2402A/B may be replaced by either (Calculus 2502A/B and Calculus 2503A/B) or (Calculus 2502A/B and Mathematics 2123A/B). When such a replacement occurs, the module will include 6.5 courses.

### Options (9.0) Courses for 4 year degree

An additional Major or Minor module may be taken here. You must successfully complete this additional module with a minimum mark of 60%.

**Notes:**

- For a 3 year degree, you require only 4.0 optional courses
- Most modular course pre-requisites stipulate a minimum grade of 60%
- Courses common to more than one module taken require substitution
- If you’re considering completing another module (e.g. double major), the other module must be from a different department

### Progression Requirements

- Satisfy the progression requirements for the University (Level 1 and Level II as described in the Academic Calendar)

**Fourth Year**

Any modular courses not yet completed

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** ** The following course subject name/number changes have been made effective September 2014. Equivalency is automatic when determining the fulfillment of modular requirements:

- AM2503→SS2503; AM3613→FM3613; AM3817→FM3817; AS2555→FM2555; AS2557→FM2557; SS3520→FM3520; SS4521→FM4521;
- SS4998→FM4998; AM2813→AM2814