

Actuarial Science Program Updates

Major Modifications to Act-Sci programs

- Purpose: Integrate data science and modern statistics in the core actuarial science curriculum. This goal is also in line with the new SOA professional curriculum. We also changed the structure of high-year courses in the Specialist program to provide more flexibility to accommodate students' different academic and professional interests.
- Effective from March 2019.

New Specialist Program Requirements

- Enrollment requirements:

- 1) MAT137Y (63%+)/MAT157Y (60%).

- 2) ACT240H1 and ACT245H1 and ACT247H1 with a final mark of at least 70% in each course.

- Program completion requirements (13 FCE):

First Year:

1. MAT137Y1 (63%)/MAT157Y1 (60%)

2. MAT223H1/MAT240H1 (should be taken in first year, enforced as a prereq for MAT237Y1)

3. ECO101H1, ECO102H1

To be completed before the end of Second Year:

1. **NEW:** STA130H1 (students are strongly recommended to complete this in their first year due to enrollment priorities)

2. CSC108H1/CSC120H1/CSC148H1 (note CSC121 will no longer be offered)

Second Year:

1. ACT240H1 (70%), ACT245H1 (70%), ACT247H1 (70%)

2. MAT237Y1/MAT257Y1

3. STA257H1, STA261H1

4. MGT201H1/RSM219H1

New Specialist Program Requirements (continued)

- Higher Years:

1. A set of mandatory courses (3.5 FCEs): ACT348H1, ACT370H1, ACT451H1, ACT452H1, STA302H1, STA314H1 (a new data science course), ACT350H1 (a new course on stochastic process)

2. 2 FCE to be selected from lists 1 and 2 (students can only use at a maximum 1FCE from list 2, the practice oriented courses, to fulfill program requirements, but are welcome to take as many list 2 courses as one likes):

- (1) ACT349H1, ACT371H1, ACT455H1, ACT460H1, ACT466H1, STA457H1, STA414H1, and

- (2) ACT372H1, ACT470H1, ACT471H1, ACT473H1, ACT475H1.

New Major Program Requirements

- Enrollment requirements: MAT137Y (63%+)/MAT157Y (60%).
- Program completion requirements (8.5 FCE):

First Year:

1. MAT137Y1 (63%)/MAT157Y1 (60%)
2. MAT223H1/MAT240H1 (should be taken in first year, enforced as a prereq for MAT237Y1)

To be completed before the end of Second Year:

1. **NEW** - STA130H1 (students are strongly recommended to complete this in their first year due to enrollment priorities)
2. **NEW**- CSC108H1/CSC120H1/CSC148H1

New Major Program Requirements (continued)

- Higher Years:

1. ACT240H1, ACT245H1, ACT247H1, ACT348H1, ACT370H1

2. MAT237Y1/MAT257Y1

3. STA257H1, STA261H1

4. ACT451H1, ACT452H1, STA302H1

- STA314H1 (a new course on data science) is strongly recommended.

NOTES:

In order to enroll in ANY 300- or 400-level ACT course, the minimum grade of C (63%) must be obtained in each of ACT240H1, ACT245H1 and ACT247H1.

Professional Exams with SOA and UofT Course Mapping

- <https://pathways.soa.org/asa>
- <https://pathways.soa.org/fsa>

UofT course mapping:

- VEE:
 - 1) Economics: ECO101+102
 - 2) Accounting and Finance: ACT349, MGT201/RSM219
 - 3) Mathematical Statistics: STA261

Professional Exams with SOA and UofT Course Mapping (continued)

- Exam Probability (P): STA257
- Exam Financial Mathematics (FM): ACT240, ACT245
- Exam Investment and Financial Markets (IFM): ACT245, ACT370, ACT349
- Exam Long-term actuarial mathematics (LTAM): ACT247, ACT348, ACT455, ACT452*, ACT350 (NEW)
- Exam Short-term actuarial mathematics (STAM): ACT451, ACT452, ACT466, ACT371, ACT372
- Exam Statistics for Risk Modeling (SRM): STA261, STA302, STA314 (NEW), STA457

*ACT452 is most related to STAM exam. However, Chapter 12 of Loss Model (now a study note for LTAM exam available on SOA website) is also covered in this course.

Note: Students should seriously consider taking ACT451 and ACT452 in their third year, given the importance of those two courses in the new SOA curriculum. ACT451 now only requires a prerequisite of STA257 and STA261 (i.e. you can now take ACT348 and ACT350/STA347 at the same time with ACT451 in your third year).

Canadian Institute of Actuaries (CIA) University Accreditation Program (UAP)

- “The UAP allows candidates to enjoy a rich and rewarding university experience that will make travel time to the Associate (ACIA) and Fellow (FCIA) designations more predictable, with minimal duplication of effort, while leveraging the strength of Canadian universities.”
- The CIA grants UAP credits to candidates for the following Society of Actuaries (SOA)/Casualty Actuarial Society (CAS) exams: FM/2, IFM/MFE/3F, LTAM/MLC, and STAM/C/4.
- **Great news** - From 2019-2020 academic year, credits will also be given to Exam P and Exam SRM!
- CIA credits are currently recognized by the following actuarial organizations towards their respective designations:
 - Casualty Actuarial Society (CAS): ACAS, FCAS
 - UK Institute and Faculty of Actuaries (IFoA): FIA, AIA
 - Institute of Actuaries of Australia (IAA): AIAA, FIAA
 - Actuarial Society of South Africa (ASSA): AMASSA, FASSA
 - American Academy of Actuaries (AAA): MAAA
 - It is currently NOT recognized by SOA.
- UofT’s UAP courses: https://www.cia-ica.ca/membership/university-accreditation-program-home/accredited-universities/accredited-university-detail?pav_universityid=06f6b138-61e5-e511-80b9-00155d111030

Professional Exams with CAS and UofT Course Mapping

- CAS has also published their 2018 new curriculum:

https://www.casact.org/cms/files/2018_Changes_to_CAS_Credentialing_Requirements.pdf

- Most notable changes are the addition of Modern Actuarial Statistics I (effective spring 2018) and Modern Actuarial Statistics II (effective fall 2018).
- Exam MAS I: ACT451, ACT452, STA261, STA 302, ACT350 (NEW), STA 457
- Exam MAS II: ACT466, STA 302, STA314 (NEW)

UofT Practice-oriented Courses

The following courses taught by FCIAs, FSAs, or FCAS from the profession can help students gain practical knowledge from various practice tracks and potentially improve competitiveness when applying for internship and employment:

- Property and Casualty (P&C): ACT371, ACT372, ACT471
- Life and annuity (and AXIS software): ACT475
- Pension: ACT470
- Professional Communication (using case studies in various practice tracks): ACT473

What about “double majors”?

The statistics program has also undergone major modifications, and has just published its new calendar (<https://fas.calendar.utoronto.ca/section/Statistical-Sciences>). For actuarial students **who enrolled in or after March 2019**, there are several things to keep in mind:

- (1) If you complete an actuarial science specialist program, you will also graduate with a statistics minor.
 - (2) If you complete an actuarial science specialist program and have completed STA457 or STA414 as part of your actuarial science specialist program, you may only need to take one extra 3rd year STA course in order to graduate with a statistics major as well. You still need to declare those programs before graduation.
 - (3) If you are in the actuarial science major, and intend to do a double major of actuarial science and statistics, you should be aware of the "12FCE different course" rule from Faculty of Arts and Science (FAS), to avoid last-minute surprises before graduation (<https://fas.calendar.utoronto.ca/degree-requirements-hba-hbsc-bcom>).
- Under the two new calendars, you may now have up to 5FCE common courses between the two programs.
 - If you have planned your courses this way, you will then complete another 3.5FCE ACT courses to fulfill the new actuarial science major requirements, and another 2FCE STA courses to fulfill the new statistics major requirements.
 - However, due to the "12FCE different course" rule, you will still need to complete another 1.5FCE from actuarial science (ACT) OR statistics (STA) that are beyond the completion requirements of either program in order to complete your "double majors".

Upcoming in 2020-2021 academic year

Professional Experience (PE) Program for actuarial science SPECIALIST!

Proposed Program Structure:

(1) The program will be structured as an “integrated learning requirement” which is mandatory for students enrolled in the program. This way international students can also get the work visa to do internships.

(2) The PE mandatory requirement is comprised of a PE course (offered in the Fall) and a practicum component. The PE course should be taken in the fall semester of the 3rd year, although 4th year specialist students can enroll too. This means you should declare your Act-Sci Specialist as early as possible!!

(3) The practicum component should be fulfilled with a semester-long internship (longer is fine). Students are ultimately responsible for securing the internship, however, the department will provide ample support.

Upcoming in 2020-2021 academic year

Support for our Specialist students under the Professional Experience (PE) Program includes:

- 1) Invited speakers series (from every major field of actuarial science)
- 2) Professional skill workshops (business writing, career planning, networking skills, resume workshop, interview skills)
- 3) Networking events to connect students with industry professionals
- 4) For students with good academic records, we will consider compiling a book of their resumes to be distributed to employers

Internship/Work Term in the proposed Specialist PE Component

- We will allow you to complete the work term requirement in Winter 3rd year, Summer 3rd year, Fall 4th year, or Winter 4th year.
- For students who really cannot secure a work term, alternative arrangements may be made to fulfill the experiential learning mandate of the program (e.g. extra 4th year practicum courses)
- If you are an international student, with the new PE mandatory component, you will be able to secure a work permit to take an internship in the above mentioned semesters.
- Our objective is that you can still complete your degree in four years. But this will require careful course planning on your part.

Sample Pathway – Scenario 1: work term is in the winter of 3rd year

- (1) Complete all required first and second year courses by the end of the second year.
- (2) Fall of 3rd year: ACT348, STA314, ACT350, 0.5FCE from list 1 or 2 (potential courses: ACT349, ACT371), and the new PE course.
- (3) Winter of 3rd year: work term
- (4) Summer of 3rd year: ACT370 and STA302. To avoid a summer term, students can also take ACT370 in the winter of their fourth year and take STA302 in the fall of their third or fourth year.
- (5) In the 4th year: ACT451 in the Fall (note this course can be taken in the fall of the third year, if they so choose) and ACT452 in the Winter. Students will then take 1.5FCE from list 1 or 2 in either fall or winter of the fourth year to complete the program.

Scenario 2: work term is in the summer of 3rd year

In this scenario, there is no interruption of course work compared to the existing calendar. Do your regular course planning.

Sample Pathway – Scenario 3: work term is in the Fall of 4th year

- (1) Complete all required first and second year courses by the end of the second year.
- (2) Fall of 3rd year: ACT348, ACT451, STA314, ACT350, and the new PE course.
- (3) Winter of 3rd year: ACT370, ACT452, STA302, 0.5FCE from list 1 or 2 (potential courses: ACT466, STA414, ACT470, ACT473, ACT475)
- (4) Summer of 3rd year: make up for courses you need for program completion only if needed (e.g. if you did not have space to take STA302 in the winter, you do that in the summer)
- (5) Fall of 4th year: work term
- (5) Winter of 4th year: 1.5FCE from list 1 or 2 to complete the program requirements (potential courses: ACT455, ACT466, STA457, ACT470, ACT473, ACT475).

Sample Pathway – Scenario 4: work term is in the Winter of 4th year

- (1) Complete all required first and second year courses by the end of the second year.
- (2) Fall of the third year: ACT348, ACT451, STA314, ACT350, and the new PE course.
- (3) Winter of the third year: ACT370, ACT452, STA302, 0.5FCE from list 1 or 2 (potential courses: ACT466, STA414, ACT470, ACT473, ACT475)
- (4) Summer of the third year: make up for courses they need for program completion if needed (e.g. if they did not have space to take STA302 in the winter, they could do that in the summer)
- (5) Fall of the fourth year: 1.5FCE from list 1 or 2 to complete the program course requirements (potential courses: ACT349, ACT371, ACT460, STA457, STA414).
- (6) Winter of the fourth year: work term.

Scenario 5 – Enter the PE course in your 4th year

- If you enter the PE course in your fourth year, you may risk delaying graduation.
- It is still possible for you to graduate in four years, if you have completed the set of higher year mandatory courses (3.5FCE) in year 3 (as shown in scenario 3 and 4 above).
- You can then complete the 2FCE from list 1 and 2 (potential courses: ACT349, ACT371, ACT460, STA457, STA414) and PE course in the Fall of year 4. You will do an internship in the Winter of year 4, or you can complete your course requirements in Fall and Winter of year 4, and do an internship in the summer of Year 4.

Tips for Actuarial Science Students

- Do your course planning early, preferably for all four years
- Study the subjects deeply to prepare for your professional career – studying for SOA exams is NO SUBSTITUTE for academic studies at UofT
- Research the profession and find your personal interest/passion
- Start your first internship search as early as possible
- Go to job information sessions, bring your resume and talk to the recruiters!
- Get involved in the actuarial science student club
- Participate in the mentorship program offered by the actuarial science club
- Participate industry activities/conferences for university students
- Participate in case study competitions
- Read widely, take courses from other departments (e.g. business, humanities), hone your oral and written communications skills!

Need More Information?

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- Actuarial Science administrator: Priya Sivathason,
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