Actuarial Science - Predictive Analytics Specialization

2026-2076 calendar

These sheets were created to help you plan your courses, not to provide an official list of your graduation requirements. It is ultimately your responsibility to ensure you meet your graduation requirements which are officially listed in the undergraduate calendar. For example, a mistake on this sheet cannot be used as a reason to graduate without meeting official requirements. See: https://uwaterloo.ca/academic-calendar/undergraduate-studies/catalog#/programs

	Course	Year/ Term	Topic	Pre-reqs	Offering	Comments
1	CS 115/135/136	1A	CS Core I		FWS	
2	MATH 135/145	1A	Algebra		FWS	
3	MATH 137/147	1A	Calculus I		FWS	
4	Math English course	1A	Course from English Language Competency requirements list		FWS	
5	MTHEL 131	1	Intro to Actuarial Practice		FW	≥60% Requried for admission to ACTSC
6	CS 116/136/146	1B	CS Core II	CS Core I	FWS	
7	MATH 136/146	1B	Linear Algebra 1	≥60% in M135	FWS	
8	MATH 138/148	1B	Calculus II	≥60% in M137	FWS	* a few other options - see first year advisor if you have issues
9	ECON 101	1	Intro Microeconomics		FWS	
10	ECON 102	1/2	Intro Macroeconomics		FWS	
11	AFM 101	1	Introduction to Financial Accounting		FWS	
12	MATH 235/245	2A	Linear Algebra 2	≥60% in M136, Coreq M138	FWS	
13	MATH 237/247	2A	Calculus 3	M136, ≥ 60% M138	FWS	
14	STAT 230/240	2A	Probability	M137 >80% or M138	FWS	
15	ACTSC 231	2A	Introductory Financial Mathematics	M137, level 2A, Coreq S230	FWS	
16	AMATH 250/251/350	2	Intro to Diff Equations	M136, M138	FWS	
17	STAT 231/241	2B	Statistics	M138,S230	FWS	
18	ACTSC 232	2B	Life Contingencies 1	>60% in A231, S230, Coreq MTHEL 131	FWS	
19	ACTSC 372	2/3	Investment Science and Corporate Finance	A231, M235, M237	FWS	
20	ACTSC 363	3A	Casualty and Health Insurance Mathematics 1	Coreq S330	FWS	
21	ACTSC 331	3A	Life Contingencies 2	≥60% in A232	FWS	
22	STAT 330	3	Mathematical Statistics	M237, ≥60% in S230,S231	FWS	
23	STAT 331	3	Applied Linear Models	M235, ≥60% in S231	FWS	
24	STAT 333	3	Stochastic Processes 1	≥60% in S230/240, M237/247	FWS	
25	ENGL 378/MTHEL 300	3B/4	Professional Communications in Statistics and Actuarial Science	(A331 or S331),≥70% in EMLS 101R, 102R, EMLS/ENGL 129R, ENGL 109, SPCOM 100, 223	FWS	
26	STAT 341	3/4	Computational Statistics and Data Analysis	≥60% in S230,M237, S231	FWS	
27	ACTSC 431	3/4	Casualty and Health Insurance Mathematics 2	≥60% in A363, S330, S331/371	FWS	
28	ACTSC 446	4	Mathematics of Financial Markets	A372, (S333 or 334)	FW	
29	STAT 431	4	Generalized Linear Models	S330,(S331 or S371)	FWS	
30	STAT 440	4	Computational Inference	S330. S341	WS	
31	ACTSC 456	4	Statistical Learning in Actuarial Science	S331/371, anti-req of STAT 441	FS	
32	**One of**					
	ACTSC 454	4	Longevity and Mortality using Predictive Analytics	A331,S330	W	
	ACTSC 457	4	Predictive Modelling in P&C Insurance	A363, S331	F	
33	**One of**					
	STAT 442	4	Date Visualization	S341	FW	
	STAT 443	4	Forecasting	S331	FWS	
	STAT 444	4	Statistical Learning - Advanced Regression	S341. S331	WS	
+	7 Additional courses, of which **at least 4** must be outside the Math Faculty					
	Students who want a double major with Statistics must have STAT 332 and a total of 3 STAT 4XX courses					
	Total 40 courses					

For CIA Accreditation information: https://uwaterloo.ca/statistics-and-actuarial-science/current-undergraduate-students/undergraduate-actuarial-accreditation-pathways

Students wishing to be eligible for the ACIA Capstone Exam at the end of their degree must complete an ACTSC major, **and also ensure they take at least two of: STAT 431, 441, or 443.**

Updated on:

2026-08-20