Actuarial Science--Predictive Analytics Option

2017-18 through 2019-20 Calendar

	Course	Year/Term	Topic	Pre-reqs	Offering	SOA exams	CAS exams	Comments
1	CS 115 or CS 135 or CS 145 *	1A	CS Core I		FWS			* a few other options - see first year advisor if you have issues
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		FWS			≥60% Requried for admission to ACTSC
6	CS 116 or CS 136 or CS 146 *	1B	CS Core II	CS Core I	FWS			* a few other options - see first year advisor if you have issues
7	MATH 136/146	1B	Linear Algebra 1	≥60% in M135	FWS			
8	MATH 138/148	1B	Calculus II	≥60% in M137	FWS			
9	ECON 101	1	Intro microeconomics		FWS	VEE-E	VEE-E	
10	ECON 102	1/2	Intro macroeconomics		FWS	VEE-E	VEE-E	
11	AFM 101	1	Core Concepts of accounting information		FWS	VEE-AF	VEE-AF	
12	MATH 235/245	2A	Linear Algebra 2	≥60% in M136, Coreq M138	FWS			
13	MATH 237/347	2A	Calculus 3	≥60% in M136,≥60% in M138	FWS			
14	STAT 230/240	2A	Probability	60% in M135, ≥60% in M137, Coreq M13	FWS	P	P	
15	ACTSC 231	2A	Introductory Financial Mathematics	M137, level 2A, Coreq S230	FWS	FM	FM	
16	AMATH 250	2	Intro to diff equations	M138	FWS			
17	STAT 231/241	2B	Statistics	M138,S230	FWS			
18	ACTSC 232	2B	Life Contingencies 1	≥60% in A232, >60% in MTHEL 131, S.230	FWS	LTAM		
19	ACTSC 371	2/3	Introduction to Investments	Coreq S231	FWS	IFM	IFM	
20	ACTSC 331	3A	Life Contingencies 2	≥60% in AS232	FWS	LTAM		
21	STAT 330	3	Stat theory and methods	M237, ≥60% in S230,S231	FWS	VEE-MS		
22	STAT 331	3	Applied linear models	M235, ≥60% in S231	FWS	SRM, PA	MAS-I	
23	STAT 333	3	Applied probability	≥60% in S230, level 3A	FWS		MAS-I	
24	ENGL 378/MTHEL 300	3B/4	Professional Communications in Statistics and Actuarial Science	(AS331 or S331),≥70% in EMLS 101R, 102R, EMLS/ENGL 129R, ENGL 109, SPCOM 100, 223	FWS	PA		
25	CS 330	3/4	Management Informaiton Systems	CS Core II, M136,M237,S231	FW			
26	STAT 341	3/4	Computational Statistics and Data Analysis	≥60% in S230,M237, S231	FW			STAT 340 is NOT accepted
27	ACTSC 431	4	Loss models 1	S330,S333	FS	STAM		
28	ACTSC 446	4	Mathematics of Financial Markets	(AS231,371), (S333 or 334)	FW	IFM	IFM	
29	STAT 431	4	Generalized linear models	S330,(S331 or S371)	FWS	SRM	MAS-I	
30	STAT 441	4	Statistical Learning - Classificaiton	S341	FW	PA	MAS-II	
31	STAT 443	3/4	Forecasting	S331	FWS		MAS-I	
32	**One of**							
	ACTSC 433	4	Survival analysis	AS331,S330	W			
	STAT 437	4	Analysis of Longitudinal Data in Health Research	S431	W			
33	**One of**							
	STAT 440	4	Computational Inference	S341	WS			
	STAT 442	4	Date Visualization	S231	FW			
+	*3 Additional 400 level ACTSC courses -- If ACTSC 433 is used above as #32, then only 2 Additional:*							
	ACTSC 432	4	Loss models 2	S330,S333	FS	STAM	MAS-II	
	ACTSC 433	4	Survival analysis	AS331,S330	W	LTAM		
	ACTSC 445	4	Quantitative Enterprise Risk Management	(AS231,371), (S330 and 333 or 334)	FS			
	ACTSC 453	4	Pensions	AS331	W (odd years)			
	ACTSC 455	4	Advanced Life Insurance Practice	≥60% in AS331, co-req A446	under review	LTAM		
	ACTSC 462	4	Intro to Property & Casualty Pricing	(AFM 272 or AS 231)	under review	STAM	Exam 5	
+	*4 Additional non-math courses*							
+	*If ACTSC 433 is used as course #32, then 1 additional course is required to meet the 40 courses.*							
	Students who want a double major with Statistics must have STAT 332 and a total of 3 STAT 4XX courses							
	Total 40 courses							

SOA and CAS exam mappings are intended to be a guideline for students.

The entire CAS MAS-II syllabus cannot be directly mapped to the program's courses. In addition to the courses indicated above, students preparing for this exam may also consider taking STAT 430, STAT 442 and STAT 440.

For CIA Accreditation information: https://uwaterloo.ca/statistics-and-actuarial-science/current-undergraduate-students/canadian-institute-actuaries-cia-accreditation

Occasionally mistakes are found on these sheets. Make sure you have the most up to date version, and know that a mistake on this sheet, will not allow you to graduate missing a required course. The undergraduate calendar is the official list of required courses for any program and these sheets are created to help things be easier for you.