Actuarial Science--Predictive Analytics Specialization

2021-2022 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.

	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	Introduction to Financial Accounting		FWS	VEE-AF	VEE-AF	
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	M. 137 >80% or M138	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	M136, M138	FWS			
17	STAT 231/241	2B	Statistics	M138,S230	FWS			
18	ACTSC 232	2B	Life Contingencies 1	≥60% in A231, >60% in MTHEL 131, S.230	FWS	LTAM		
19	ACTSC 372	2/3	Investment Science and Corporate Finance	A231, M235, M237	FWS	IFM, VEE-AF	IFM, VEE-AF	
20	ACTSC 363	3A	Casualty and Health Insurance Mathematics 1	Coreq S330	FW (S-?)	STAM		First offering is Winter 2021
21	ACTSC 331	3A	Life Contingencies 2	≥60% in A232	FWS	LTAM		
22	STAT 330	3	Mathematical Statistics	M237, ≥60% in S230,S231	FWS	VEE-MS		
23	STAT 331	3	Applied linear models	M235, ≥60% in S231	FWS	SRM, PA	MAS-I	
24	STAT 333	3	Stochastic Processes 1	≥60% in S230/240, M237/247	FWS		MAS-I	
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	PA		
26	CS 330	3/4	Management Informaiton Systems	CS Core II, level 2B	FW			
27	STAT 341	3/4	Computational Statistics and Data Analysis	≥60% in S230,M237, S231	FW			STAT 340 is NOT accepted
28	ACTSC 431	4	Casualty and Health Insurance Mathematics 2	≥60% in A363, S330	FS	STAM		First offering is Spring 2021
29	ACTSC 446	4	Mathematics of Financial Markets	A372, (S333 or 334)	FW	IFM	IFM	
30	STAT 431	4	Generalized linear models	S330,(S331 or S371)	FWS	SRM	MAS-I	
31	STAT 441	4	Statistical Learning - Classificaiton	S341; S331	FW	PA	MAS-II	
32	STAT 443	3/4	Forecasting	S331	FWS		MAS-I	
33	**One of**							
	ACTSC 454	4	Longevity and Mortality using Predictive Analytics	A331,S330	W	LTAM		Formerly ACTSC 433
	STAT 437	4	Statistical Methods for Life History Analysis	S431	W			
34	**One of**							
	STAT 440	4	Computational Inference	S330, S341	WS			
	STAT 442	4	Date Visualization	S341	FW			
+	*2 Additional 400 level ACTSC courses -- If ACTSC 454 is used above as #33, then only 1 Additional:*							
	ACTSC 432	4	Property & Casualty Insurance: Pricing	A363, S330, S331/371	FS	STAM	MAS-II	
	ACTSC 445	4	Quantitative Enterprise Risk Management	A372, (S330 and 333 or 334)	FS			
	ACTSC 453	4	Basic Pensions Mathematics	A331	W (odd years)			
	ACTSC 455	4	Life Contingencies 3	≥60% in A331, co-req A446	W	LTAM		
	ACTSC 463	4	Intro to Property & Casualty Loss Reserving	A363, S331/371	W (not certain)	STAM	Exam 5	
+	4 Additional non-math courses							
+	*If ACTSC 454 is used as course #33, then 5th 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 indicate that the course covers some topics on the exam's syllabus and are intended to be used as a guideline, not as a direct mapping.

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

Updated on:

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