

Checklist for Mathematics Major with Actuarial Science Emphasis

We recommend to students interested in the actuarial science major: follow your math placement, and take Calculus I as early as possible, because it is part of the major required sequence MAT-117/131H, 118/132H, 231-232.

Required Courses (8)

Requirement	Course	Fall	Spring	Prerequisite	Semester Planned	Completed
Calculus I	MAT 131H or	x		MAT 114 or placement		
	MAT 117	x	x	MAT 114 or placement		
Calculus II	MAT 132H or		x	MAT 131H		
	MAT 118	x	x	MAT 117		
Statistics Programming	CSC 120	x	x	MAT 111 or placement		
Calculus III	MAT 231	x		MAT 118 or MAT 132H		
Multivariable Calculus	MAT 232		x	MAT 231		
Discrete Structures	MAT 202	x		MAT 118/132H, or coreq.		
Linear Algebra	MAT 203		x	MAT 202		
Mathematics Seminar	MAT 401	x		Senior math major		
Senior Math Assessment (Comp. Exam, not a course)		x	x	Senior math major		

Electives (4)

Requirement	Course	Fall	Spring	Prerequisite	Semester Planned	Completed
A. Take at least one of:						
Real Analysis *	MAT 332	Odd		MAT 202 and MAT 232		
Modern Algebra	MAT 351	Even		MAT 202		
Topology	MAT 358		Even	MAT 202 and MAT 232		
B. Take at least one more 300+ level from above or from B:						
Modern Algebra II	MAT 352		Odd	MAT 351		
Adv. Euclidean Geometry	MAT 353	Odd		MAT 118/132H and MAT 202		
Differential Equations *	MAT 355		Odd	MAT 232, or corequisite		
Numerical Analysis	MAT 356		Even	MAT 118/132H		
Mathematics Thesis	MAT 402	x	x	Senior math major		
C. Take at least two more 200+ level Math courses from above, or:						
Number Theory	MAT 204		Even	MAT 202		
Actuarial Mathematics *	MAT 207	Even		MAT 202		
Probability Theory *	MAT 208		x	MAT 118/132H		
Intro to Engineering	PHY 213		x	MAT 118/132H, or coreq.		

Actuarial Science Emphasis Courses (9)

Microeconomics	ECO 110	x	x			
Macroeconomics	ECO 111	x	x	ECO 110		
Accounting I	ACC 125	x	x			
Accounting II	ACC 126	x	x	ACC 125		
Actuarial Math **	MAT 207	Even		MAT 202		
Statistics **	ECO 115	x	x	BUS 100		
Data Visualization	CSC 130		x	ECO 115		
Econometrics I **	ECO 215		x	Statistics, Calculus I and BUS 100 or CSC 113 or CSC 175		
Financial Management I **	FIN 325	x	x	ECO 110/111 and ACC 125		
Investment Theory	FIN 357	x		ECO 110/111 and ECO 115		

Finance Minor Courses (6) Suggested but Not Required

Requirement	Course	Fall	Spring	Prerequisite	Semester Planned	Completed
Calculus I **	MAT 131H or	x		MAT 114 or placement		
	MAT 117	x	x	MAT 114 or placement		
Statistics **	ECO 115	x	x	BUS 100		
Financial Management I **	FIN 325	x	x	ECO 110/111 and ACC 125		
Financial Management II	FIN 326	x		FIN 325		
Invest. and Security Valuation	FIN 358		x	FIN 357		
Financial Modelling	FIN 330		x	FIN 325, ECO 115		

Data Analytics Minor Courses (7) Suggested but Not Required

Statistics Programming **	CSC 120	x	x	MAT 111 or placement		
Databases and Spreadsheets	CSC 175	x		CSC 113 or CSC 117		
Statistics **	ECO 115	x	x	BUS 100		
Econometrics I **	ECO 215		x	Statistics, Calculus I and BUS 100 or CSC 113 or CSC 175		
Linear Algebra **	MAT 203		x	MAT 202		
Large Data Sets	CSC 233		x	CSC 120		
Machine Learning	CSC 333	x		CSC 233		

* recommended electives for Actuarial Science emphasis

** double counts within major or suggested minors

Mathematics majors with Actuarial Science Track are encouraged – but not required – to take the first Actuarial Exam (Exam P, Probability, sponsored by Society of Actuaries) soon after taking MAT-208. Exam P is a minimum requirement for entry into a summer internship or fulltime employment as an actuary in an insurance company program. Advanced students may also consider taking the second Actuarial Exam (Exam FM, Financial Mathematics) before graduation.

Suggested Schedule for Mathematics Major with Actuarial Science Emphasis

See Assumption's Catalog for additional information, e.g. Core Curriculum requirements

First Year: Fall 20____	Spring 20____
1. MAT 131H Honors Calculus I (Fall) or MAT 117 Calculus (any semester), or follow your math placement	1. MAT 132H Honors Calculus II (Spring) or MAT 118 Calculus II (any semester) (Finish Calculus I and II as soon as possible)
2. ECO 110 Principles of Microeconomics	2. ECO 111 Principles of Macroeconomics
3. CSC 120 Stats Programming (any semester)	3. CSC 233 Large Data Sets
4.	4.
5.	5.

Second Year: Fall 20____	Spring 20____
1. MAT 202 Discrete Structures (Fall)	1. MAT 208 Probability Theory (Spring)
2. MAT 231 Calculus III (Fall)	2. MAT 232 Multivariable Calculus (Spring)
3. ACC 125 Principles of Accounting I	3. ACC 126 Principles of Accounting II
4. CSC 175 Databases and Spreadsheets	4.
	5.
	6. BUS 100 Excel (1 credit, if ECO 115 in Fall)

Third Year: Fall 20____	Spring 20____
1. ECO 115 Statistics	1. MAT 203 Linear Algebra
2. MAT 207 Actuarial Math (Fall even, or move to 3rd year if odd year)	2. FIN 325 Financial Management I (Spring)
3. CSC 333 Machine Learning	3. CSC 130 Data Visualization
4.	4. MAT 355 Differential Equations (Spring odd, move to 4th year if even)
5.	5.

Fourth Year: Fall 20____	Spring 20____
1. MAT 332 Real Analysis (Fall odd, or move to 4th year if even year)	1. FIN 330 Financial Modelling (Spring)
2. MAT 401 Mathematics Seminar (Fall)	2. FIN 358 Investments and Security Valuation
3. FIN 357 Investment Theory (Fall)	3.
4. ECO 215 Econometrics I	4.
5. FIN 326 Financial Management II (Fall)	5.
	6. Senior Math Assessment Exam, not a course