Mathematics - Applied Mathematics Emphasis, B.S.

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Requirements

Mathematics degrees allow for a wide variety of employment options.The following careers are very mathematics centered, though in many cases additional training beyond a mathematics degree (or at least beyond a B.S.Mathematics degree) is needed to qualify for employment in these fields: actuarial work, education, research analysis, cryptology, systems analysis, robotics engineering, design modeling (creating cost efficient models), geomatics engineering, photogrammatism, stock trading, biomathematics, accounting or auditing, population ecology, aspects of forensic analysis and some types of computer programming design.There are also jobs for mathematics graduates in the federal government, mainly in the department of defense.The degree required depends on the type of job in the areas mentioned, and the salary leve

Total Program Credits: 120

Matriculation Requirements:			
1. Completion of MATH 1210 and MATH 1220 (or equivalent) with an overall GPA of 2.5 or better 2. Student must meet with the Math Department advisor and declare an intent to major in Mathematics			
General Education Requirements:			39 Credits
	ENGL 1010	Introduction to Academic Writing	3
or	ENGH 1005	Literacies and Composition Across Contexts (5.0)	
	ENGL 2010	Intermediate Writing Academic Writing and Research	3
	MATH 1210	Calculus I	4
or	MATH 121H	Calculus I (4)	
Complete one of the following:			3
	HIST 2700	US History to 1877 (3)	
and	HIST 2710	US History since 1877 (3)	
	HIST 1700	American Civilization (3)	
	HIST 1740	US Economic History (3)	
	POLS 1000	American Heritage (3)	
	POLS 1100	American National Government (3)	
Complete the following:			
	PHIL 2050	Ethics and Values	3
	HLTH 1100	Personal Health and Wellness (2)	
or	EXSC 1097	Fitness for Life	2
Distribution Courses:			
	Biology		3
	PHYS 2210	Physics for Scientists and Engineers I	4
	PHYS 2215	Physics for Scientists and Engineers I Lab	1
	PHYS 2220	Physics for Scientists and Engineers II (4) (Required for Mathematics and Applied Mathematics Emphasis)	
and	PHYS 2225	Physics for Scientists and Engineers II Lab (1) (Required for Mathematics and Applied Mathematics Emphasis)	
or	One other Biology or Physical Science Distribution (Required for Applied Mathematics Emphasis)		3
	Humanities		3
	Fine Arts		3
	Social/Behavioral		3
Discipline Core Requirements:			31 Credits
Complete the following:			
	CS 1400	Fundamentals of Programming	3
	STAT 2050	Introduction to Statistical Methods	4
	STAT 2060	Introduction to Statistical Computing	1
	MATH 1220	Calculus II	4
or	MATH 122H	Calculus III (4)	
	MATH 2210	Calculus III	4
or	MATH 221H	Calculus III (4)	
	MATH 2270	Linear Algebra	3
	MATH 2280	Ordinary Differential Equations	3
	MATH 3250	Introduction to Advanced Calculus WE	3
	MATH 3300	Foundations of Abstract Algebra	3
	MATH 4210	Advanced Calculus I *	3
Elective Requirements:			21 Credits
	Complete 12 credits of upper division electives**		12
	Complete 9 credits of upper or lower division electives**		9
Emphasis Requirements:			20 Credits
Complete all of the following:			
	CS 1410	Object Oriented Programming	3
	STAT 3040	Probability and Statistics for Engineering and the Sciences	3
	MATH 3210	Complex Variables	3
	MATH 3400	Partial Differential Equations	3
	MATH 4610	Introduction to Numerical Analysis I	3
	MATH 4620	Introduction to Numerical Analysis II	3
	MATH 4999	Mathematics Capstone WE	2
Emphasis Elective Requirements:			10 Credits
Complete 10 credits chosen from the following:			10
	MATH 3320	Graph Theory and its Applications (3)	
	MATH 3640	Introduction to Optimization (3)	
	MATH 3750	Financial Mathematics (3)	
	MATH 4100	Differential Geometry of Curves and Surfaces (3)	
	MATH 4220	Advanced Calculus II (3)	
	MATH 4250	Introduction to Dynamical Systems (3)	
	MATH 4310	Introduction to Modern Algebra I (3)	

	MATH 4320	Introduction to Modern Algebra II (3)***	
	MATH 4330	Theory of Linear Algebra (3)	
	MATH 4340	Introduction to Number Theory (3)	
	MATH 4510	Foundations of Topology (3)	
	MATH 4750	Life Contingencies (3)	
	MATH 481R	Internship in Mathematics (1)	
	MATH 489R	Undergraduate Research in Mathematics (1)	
	MATH 490R	Topics in Mathematics (2)	
	MATH 5510	General Topology (3.0)	
	PHYS 3300	Mathematical Physics (3.0)	
	PHYS 3310	Advanced Mathematical Physics (3)***	
	PHYS 3330	Computational Physics (3)***	
	STAT 4000	Applied Regression and Time Series WE (3)	
	STAT 4710	Mathematical Statistics-Probability and Statistics (3)	
	STAT 4720	Mathematical Statistics-Statistical Inference (3)***	

Graduation Requirements:

1. Completion of a minimum of 120 semester credits with at least 40 credit hours in upper-division courses.
2. Overall grade point average of 2.0 (C) or above, a minimum GPA of 2.4 in all MATH and STAT courses listed above, with no grade lower than a "C" in all listed PHYS, STAT, and MATH courses (substitutions may be granted for some elective courses).
3. Residency hours-- minimum of 30 credit hours through course attendance at UVU, with at least 10 hours earned in the last 45 hours.
4. Completion of general education and specified departmental requirements.
5. Complete an exit survey administered by the Mathematics Department Advisor.
6. Successful completion of at least one Global/Intercultural course.

Footnote:
* Students planning to do graduate work in mathematics should take both of the year-long sequences MATH 4210, 4220, and MATH 4310, 4320, and acquire a reading knowledge of at least one foreign language chosen from French, German, or Russian.
**Elective courses may NOT include MATH 3100, MATH 3200, MATH 3010, MATH 3030, MATH 4030, or MATH 4040.
*** Requires completion of a prerequisite course, which fulfills elective requirements.

Mathematics - Applied Mathematics Emphasis, B.S. *Graduation Plan*

This graduation plan is a sample plan and is intended to be a guide. Your specific plan may differ based on your Math and English placement and/or transfer credits applied. You are encouraged to meet with an advisor and set up an individualized graduation plan in Wolverine Track.

Milestone courses (pre-requisites for a course in one of the subsequent semesters) are marked in red and Italicized.

Semester 1	Course Title	Credit Hours
MATH 1210 or MATH 121H	Calculus I	4
ENGL 1010 or ENGH 1005	Intro to Writing GE or Literacies and Composition Across Contexts	3
Humanities GE	Humanities GE	3
Biology GE	Biology GE	3
Elective	Elective (any course numbered 1000 or higher)	3
	Semester total:	16
Semester 2	Course Title	Credit Hours
MATH 1220 or MATH 122H	Calculus II	4
PHYS 2210/2215	Physics for Scientists and Engineers I (and lab)	5
ENGL 2010	Intermediate Writing GE	3
CS 1400	Fundamentals of Programming	3
Note: Must complete MATH 1210 and MATH 1220 with a 2.5 GPA.		
	Semester total:	15
Semester 3	Course Title	Credit Hours
MATH 2210 or MATH 221H	Calculus III	4
PHYS 2220/2225 or one other Biology or Physical Science Distribution	Physics for Scientists and Engineers II (and lab)	3
MATH 2270	Linear Algebra	3
CS 1410	Object Oriented Programming	3
HLTH 1100 or EXSC 1097	Personal Health or Fitness for Life GE	2
	Semester total:	15
Semester 4	Course Title	Credit Hours
STAT 2050	Introduction to Statistical Methods	4
MATH 2280	Ordinary Differential Equations	3
MATH 3250	Introduction to Advanced Calculus WE	3
STAT 2060	Introduction to Statistical Computing	1
History GE	American Institutions (Choose from list)	3
Upper Division Elective	**Upper Division Elective (any course numbered 3000 or higher)	3
	Semester total:	17
Semester 5	Course Title	Credit Hours
STAT 3040	Probability and Statistics for Engineering and Sciences	3
MATH 3210	Complex Variables	3
MATH 3300	Foundations of Abstract Algebra	3
Elective	Elective (any course numbered 1000 or higher)	3
Fine Arts GE	Fine Arts GE	3
	Semester total:	15
Semester 6	Course Title	Credit Hours
MATH 3400	Partial Differential Equations	3
MATH Elective	*see notes below	3
MATH Elective	*see notes below	2
Elective	Elective (any course numbered 1000 or higher)	3
PHIL 205G	Ethics and Values GE, and GI requirement	3
	Semester total:	14
Semester 7	Course Title	Credit Hours
MATH 4210	Advanced Calculus I	3
MATH 4610	Intro to Numerical Analysis I	3
MATH Elective	*see notes below	2
Upper Division Elective	**Upper Division Elective (any course numbered 3000 or higher)	3
Upper Division Elective	**Upper Division Elective (any course numbered 3000 or higher)	3
	Semester total:	14
Semester 8	Course Title	Credit Hours
MATH 4620	Intro to Numerical Analysis II	3
MATH 4999	Mathematics Capstone WE	2
Social/ Behavioral GE	Social/Behavioral GE	3
Upper Division Elective	Upper Division Elective (any course numbered 3000 or higher)	3
MATH Elective	*see notes below	3
	Semester total:	14
	Degree total:	120
Notes: *Four MATH Electives must be taken from MATH 3320, MATH 3640, MATH 3750, MATH 4100, MATH 4220, MATH 4250, MATH 4310, MATH 4320, MATH 4330, MATH 4340, MATH 4510, MATH 4750, MATH 481R, MATH 489R, MATH 490R, MATH 5510, STAT 4000, STAT 4710, STAT 4720, PHYS 3300, PHYS 3310, PHYS 3330.		
Notes: **Elective courses may NOT include MATH 3100, MATH 3200, MATH 3010, MATH 3030, MATH 4030, or MATH 4040.		