

# BS in Mathematics (694420) MAP Sheet

Physical and Mathematical Sciences, Mathematics

For students entering the degree program during the 2018-2019 curricular year.



University Core and Graduation Requirements				Suggested Sequence of Courses			
<b>University Core Requirements:</b>				<b>FRESHMAN YEAR</b>			
<b>Requirements</b>	<b>#Classes</b>	<b>Hours</b>	<b>Classes</b>	<b>1st Semester</b>		<b>JUNIOR YEAR</b>	
<b>Religion Cornerstones</b>				First-year Writing	3.0	<b>5th Semester</b>	
Teachings and Doctrine of The Book of Mormon	1	2.0	REL A 275	MATH 112	4.0	MATH 342	3.0
Jesus Christ and the Everlasting Gospel	1	2.0	REL A 250	MATH 191	0.5	MATH elective 1	3.0
Foundations of the Restoration	1	2.0	REL C 225	MATH 290	3.0	Advanced Written & Oral Communication	3.0
The Eternal Family	1	2.0	REL C 200	Biological Science	3.0	Civilization 1	3.0
<b>The Individual and Society</b>				Religion Cornerstone course	2.0	Religion elective	2.0
American Heritage	1-2	3-6.0	from approved list	<b>Total Hours</b>	<b>15.5</b>	General electives	1.0
Global and Cultural Awareness	1	3.0	from approved list	<b>Total Hours</b>	<b>15.5</b>	<b>6th Semester</b>	
<b>Skills</b>				<b>2nd Semester</b>		MATH 352	3.0
First Year Writing	1	3.0	from approved list	American Heritage	3.0	MATH 334	3.0
Advanced Written and Oral Communications	1	3.0	from approved list	C S 142	3.0	Civilization 2	3.0
Quantitative Reasoning	1	4.0	MATH 112* or 113*	MATH 113	4.0	Religion elective	2.0
Languages of Learning (Math or Language)	1	4.0	MATH 112* or 113*	MATH 313	3.0	General Electives	4.0
<b>Arts, Letters, and Sciences</b>				Religion Cornerstone course	2.0	<b>Total Hours</b>	<b>15.0</b>
Civilization 1	1	3.0	from approved list	<b>SOPHOMORE YEAR</b>		<b>7th Semester</b>	
Civilization 2	1	3.0	from approved list	<b>3rd Semester</b>		MATH elective 2	3.0
Arts	1	3.0	from approved list	MATH 314	3.0	MATH elective 3	3.0
Letters	1	3.0	from approved list	STAT 201 or 251	3.0	MATH elective 3	3.0
Biological Science	1	3-4.0	from approved list	Social Science	3.0	Global & Cultural Awareness	3.0
Physical Science	1	3.0	from approved list	Religion Cornerstone course	2.0	Religion elective	2.0
Social Science	1	3.0	from approved list	General Education courses, university requirements, and/or general electives	4.0	General Electives	4.0
<b>Core Enrichment: Electives</b>				<b>Total Hours</b>	<b>15.0</b>	<b>Total Hours</b>	<b>15.0</b>
Religion Electives	3-4	6.0	from approved list	<b>4th Semester</b>		<b>8th Semester</b>	
Open Electives	Variable	Variable	personal choice	MATH 341	3.0	MATH elective 4	3.0
*THESE CLASSES FILL BOTH UNIVERSITY CORE AND PROGRAM REQUIREMENTS (4 hours overlap)				MATH 371	3.0	MATH elective 5	3.0
<b>Graduation Requirements:</b>				Letters	3.0	Arts	3.0
Minimum residence hours required		30.0		Physical Science	3.0	General Electives	6.0
Minimum hours needed to graduate		120.0		Religion Cornerstone course	2.0	<b>Total Hours</b>	<b>15.0</b>
				General Electives	0.5		
				<b>Total Hours</b>	<b>14.5</b>		
				<b>Note:</b> Students are encouraged to complete an average of 15 credit hours each semester or 30 credit hours each year, which could include spring and/or summer terms. Taking fewer credits substantially increases the cost and the number of semesters to graduate.			

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### 2018-2019 Program Requirements (54 Credit Hours)

<p><b>Grades of C- or below will not be acceptable in major courses.</b></p> <p><b>REQUIREMENT 1</b> Complete 11 courses</p> <p><b>CORE REQUIREMENTS:</b></p> <p>MATH 112 - Calculus 1 4.0</p> <p>MATH 113 - Calculus 2 4.0</p> <p>MATH 191 - Seminar in Mathematics 1 0.5</p> <p>MATH 290 - Fundamentals of Mathematics 3.0</p> <p>MATH 313 - Elementary Linear Algebra 3.0</p> <p>MATH 314 - Calculus of Several Variables 3.0</p> <p>MATH 334 - Ordinary Differential Equations 3.0</p> <p>MATH 341 - Theory of Analysis 1 3.0</p> <p>MATH 342 - Theory of Analysis 2 3.0</p> <p>MATH 352 - Introduction to Complex Analysis 3.0</p> <p>MATH 371 - Abstract Algebra 1 3.0</p> <p><b>REQUIREMENT 2</b> Complete 1 course</p> <p>C S 142 - Introduction to Computer Programming 3.0</p> <p><b>REQUIREMENT 3</b> Complete 1 course</p> <p>STAT 201 - Statistics for Engineers and Scientists 3.0</p> <p>STAT 251 - Introduction to Bayesian Statistics 3.0</p> <p><b>REQUIREMENT 4</b> Complete 15.0 hours from the following course(s)</p> <p>C S 235 - Data Structures and Algorithms 3.0</p> <p>MATH 300 - (Math-MthEd) History and Philosophy of Mathematics 3.0</p> <p>MATH 355 - Graph Theory 3.0</p> <p>MATH 362 - (Math-MthEd) Survey of Geometry 3.0</p> <p>MATH 372 - Abstract Algebra 2 3.0</p> <p>MATH 402 - Modeling with Uncertainty and Data 1 3.0</p> <p>MATH 403 - Modeling with Uncertainty and Data 1 Laboratory 1.0</p> <p>MATH 404 - Modeling with Uncertainty and Data 2 3.0</p> <p>MATH 405 - Modeling with Uncertainty and Data 2 Laboratory 1.0</p> <p>MATH 406R - Topics in Mathematics 3.0</p> <p>MATH 410 - Introduction to Numerical Methods 3.0</p> <p>MATH 411 - Numerical Methods 3.0</p> <p>MATH 425 - Mathematical Biology 3.0</p> <p>MATH 431 - Probability Theory 3.0</p> <p>MATH 435 - Mathematical Finance 3.0</p> <p>MATH 436 - Modeling with Dynamics and Control 1 3.0</p> <p>MATH 437 - Modeling with Dynamics and Control 1 Laboratory 1.0</p> <p>MATH 438 - Modeling with Dynamics and Control 2 3.0</p> <p>MATH 439 - Modeling with Dynamics and Control 2 Laboratory 1.0</p> <p>MATH 447 - Introduction to Partial Differential Equations 3.0</p> <p>MATH 450 - Combinatorics 3.0</p> <p>MATH 451 - Introduction to Topology 3.0</p> <p>MATH 465 - Differential Geometry 3.0</p>	<p>MATH 473 - Group Representation Theory 3.0</p> <p>MATH 485 - Mathematical Cryptography 3.0</p> <p>MATH 487 - Number Theory 3.0</p> <p>MATH 495R - Readings in Mathematics 2.0v</p> <p>MATH 510 - Numerical Methods for Linear Algebra 3.0</p> <p>MATH 511 - Numerical Methods for Partial Differential Equations 3.0</p> <p>MATH 513R - Advanced Topics in Applied Mathematics 3.0</p> <p>MATH 521 - Methods of Applied Mathematics 1 3.0</p> <p>MATH 522 - Methods of Applied Mathematics 2 3.0</p> <p>MATH 532 - Complex Analysis 3.0</p> <p>MATH 534 - Introduction to Dynamical Systems 1 3.0</p> <p>MATH 536 - Applied Discrete Probability 3.0</p> <p>MATH 540 - Linear Analysis 3.0</p> <p>MATH 541 - Real Analysis 3.0</p> <p>MATH 547 - Modeling and Analysis of Partial Differential Equations 3.0</p> <p>MATH 553 - Foundations of Topology 1 3.0</p> <p>MATH 554 - Foundations of Topology 2 3.0</p> <p>MATH 561 - Introduction to Algebraic Geometry 1 3.0</p> <p>MATH 562 - Introduction to Algebraic Geometry 2 3.0</p> <p>MATH 565 - Differential Geometry 3.0</p> <p>MATH 570 - Matrix Analysis 3.0</p> <p>MATH 571 - Algebra 1 3.0</p> <p>MATH 572 - Algebra 2 3.0</p> <p>MATH 586 - Introduction to Algebraic Number Theory 3.0</p> <p>MATH 587 - Introduction to Analytic Number Theory 3.0</p> <p><b>REQUIREMENT 5</b></p> <p>Students are required to take either the GRE Mathematics Subject Test or the Mathematics Major Field Test the last semester before they graduate. The tests are ETS (Educational Testing Service) standardized assessment tests of undergraduate mathematics. Go to ETS Math Subject Test (<a href="http://www.ets.org/gre/subject/about/content/mathematics">http://www.ets.org/gre/subject/about/content/mathematics</a>) or ETS Major Field Tests (<a href="http://www.ets.org/mft/about/content/mathematics">http://www.ets.org/mft/about/content/mathematics</a>) for a test description and sample problems. These tests do not appear on the transcript or affect the GPA.</p> <p><b>Students must participate in an exit interview before graduation.</b></p> <p><b>RECOMMENDED</b> Complete 3 courses</p> <p>ECON 110 - Economic Principles and Problems 3.0</p> <p>PHSCS 121 - Introduction to Newtonian Mechanics 3.0</p> <p>PHSCS 220 - Introduction to Electricity and Magnetism 3.0</p> <p><b>Note 1: The courses recommended above can be used to fill General Education requirements.</b></p> <p><b>Note 2: Students who continue toward graduate work should complete Math 372 or Math 473, as well as Math 541 and Math 553.</b></p>	<p><b>Note 3: Students who do not plan to pursue a Ph.D. in mathematics are strongly encouraged to complete CS 235.</b></p> <p><b>THE DISCIPLINE:</b></p> <p>Mathematics is a means of dealing with order, pattern, and number as seen in the world around us. The abilities to compute, to think logically, and to take a reasoned approach to solving problems are highly valued in society and are characteristics of any educated person. Mathematics is not just a body of knowledge, but a process of analysis, reasoning, comparison, deduction, generalization, and problem solving. A mathematician's stock in trade is the ability to solve problems and to explain the solutions to others. Having once determined what the right questions are, solving problems involves analyzing both concrete and abstract situations, relating them to mathematical ideas and using mathematical techniques to work toward solutions. Explaining the solution involves pointing out what has been solved and why the solution is valid.</p> <p><b>CAREER OPPORTUNITIES:</b></p> <p>Majors in mathematics (BS) prepare for a wide variety of careers. Some enter graduate school or professional schools and prepare for careers in such fields as college teaching, consulting, research and development, law, medicine, and business administration. Others take positions in government agencies, industrial laboratories, information management firms, or business organizations. All of them spend much time communicating with colleagues about the problems they are solving as they continue to learn more mathematics and share mathematical ideas with others.</p> <p><b>INTERNSHIP COORDINATOR:</b></p> <p>Rynell Lewis 283 TMCB 801-422-5925 rlewis@mathematics.byu.edu</p> <p><b>MAP DISCLAIMER</b></p>
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## **BS in Mathematics (694420)**

**2018-2019**

While every reasonable effort is made to ensure accuracy, there are some student populations that could have exceptions to listed requirements. Please refer to the university catalog and your college advisement center/department for complete guidelines.

### **DEPARTMENT INFORMATION**

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### **ADVISEMENT CENTER INFORMATION**

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