BS in Mathematics Education (694620) MAP Sheet

Physical and Mathematical Sciences, Mathematics Education

For students entering the degree program during the 2017-2018 curricular year.

This major is designed to prepare students to teach in public schools. In order to graduate with this major, students are required to complete Utah State Office of Education licensing requirements. To view these requirements go to http://education.byu.edu/ess/licensing.html or contact Education Student Services, 350 MCKB, (801) 422-3426.

University Core and Graduation Requirements

University Core Requirements:

Requirements	#Classes	Hours	Classes
Religion Cornerstones			
Teachings and Doctrine of The Book of Mormon	1	2.0	REL A 275
Jesus Christ and the Everlasting Gospel	1	2.0	REL A 250
Foundations of the Restoration	1	2.0	REL C 225
The Eternal Family	1	2.0	REL C 200
The Individual and Society			
American Heritage	1-2	3-6.0	from approved list
Global and Cultural Awareness	1	2.0	SC ED 353*
Skills			
First Year Writing	1	3.0	from approved list
Advanced Written and Oral Communications	1	3.0	from approved list
Quantitative Reasoning	1	4.0	MATH 112* or 113*
Languages of Learning (Math or Language)	1	4.0	MATH 112* or 113*
Arts, Letters, and Sciences			
Civilization 1	1	3.0	from approved list
Civilization 2	1	3.0	from approved list
Arts	1	3.0	from approved list
Letters	1	3.0	from approved list
Biological Science	1	3-4.0	from approved list
Physical Science	1	3.0	from approved list
Social Science	1	3.0	from approved list
Core Enrichment: Electives			
Religion Electives	3-4	6.0	from approved list
Open Electives	Variable	Variable	personal choice

*THESE CLASSES CAN FILL BOTH UNIVERSITY CORE AND PROGRAM REQUIREMENTS (11 hours overlap)

Graduation Requirements:

Minimum residence hours required	30.0
Minimum hours needed to graduate	120.0

Suggested Sequence of Courses

FRESHMAN YEAR

1st Semester

First-year Writing	3.0
MATH 112	4.0
Religion Cornerstone course	2.0
Biological Science	3.0
Letters	3.0
Total Hours	**15.0**

2nd Semester

American Heritage	3.0
MATH 113	4.0
MATH 290	3.0
Religion Cornerstone course	2.0
Social Science	3.0
Total Hours	**15.0**

SOPHOMORE YEAR

3rd Semester

MATH 313	3.0
MTHED 177	3.0
STAT 121	3.0
Civilization 1	3.0
Religion Cornerstone course	2.0
Arts	3.0
Total Hours	**17.0**

4th Semester

MATH 314	3.0
MATH 371	3.0
MTHED 276	4.0
Religion Cornerstone course	2.0
Physical Science	3.0
Total Hours	**15.0**

JUNIOR YEAR

5th Semester

MATH 341	3.0
MTHED 362	3.0
MTHED 277	3.0
SC ED 353	2.0
Advanced Written & Oral Communication	3.0
Religion elective	2.0
Total Hours	**16.0**

6th Semester

CPSE 402	2.0
MATH 334	3.0
MTHED 301	3.0
MTHED 308	3.0
Civilization 2	3.0
Religion Elective	2.0
Total Hours	**16.0**

SENIOR YEAR

7th Semester

MTHED 300	3.0
MATH 355, 450, or 487	3.0
MTHED 377	3.0
MTHED 378	1.0
SC ED 375	3.0
Religion Elective	2.0
Total Hours	**15.0**

8th Semester

MTHED 476 or MTHED 496	12.0
Total Hours	**12.0**

Note: 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.

Note 2: The sequence of courses suggested may not fit the circumstances of every student. Students should contact their college advisement center for help in outlining an efficient schedule.

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2017-2018 Program Requirements (77 Credit Hours)

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For students accepted into the major after August 1, 2014, grades below C in any required coursework in a teaching major or teaching minor will not be accepted. Teacher candidates must maintain a total GPA of 3.0 or higher throughout the program and to qualify for student teaching. For details on admission and retention requirements for teaching majors and teaching minors, see Educator Preparation Program (EPP) Requirements.

REQUIREMENT 1 Complete 6 courses

CORE REQUIREMENTS. NOTE 1: PREREQUISITES FOR ALL MATHEMATICS EDUCATION COURSES WILL BE STRICTLY ADHERED TO. NOTE 2: FBI FINGERPRINT AND BACKGROUND CLEARANCE MUST BE COMPLETED PRIOR TO ENROLLMENT IN MTHED 276.

MTHED 177 - Critical Review of School Mathematics	3.0
MTHED 276 - Exploration of Mathematics Teaching	4.0
MTHED 277 - Task Design and Assessment of Student Understanding	3.0
MTHED 308 - Mathematics Teaching with Technology	3.0
MTHED 377 - Mathematics Teaching in the Public Schools	3.0
MTHED 378 - Practicum in Mathematics Education	1.0

REQUIREMENT 2 Complete 12 courses

MATH 112 - Calculus 1	4.0
MATH 113 - Calculus 2	4.0
MATH 290 - Fundamentals of Mathematics	3.0
MATH 313 - Elementary Linear Algebra	3.0
MATH 314 - Calculus of Several Variables	3.0
MATH 334 - Ordinary Differential Equations	3.0
MATH 341 - Theory of Analysis 1	3.0
MATH 371 - Abstract Algebra 1	3.0
MATH 300 - (Math-MthEd) History and Philosophy of Mathematics	3.0
MTHED 301 - Teaching Statistics and Probability	3.0
MATH 362 - (Math-MthEd) Survey of Geometry	3.0
STAT 121 - Principles of Statistics	3.0

REQUIREMENT 3 Complete 1 course

MATH 355 - Graph Theory	3.0
MATH 450 - Combinatorics	3.0
MATH 487 - Number Theory	3.0

A teaching minor is not needed for licensure. However, students interested in teaching an academic subject in addition to mathematics should consider pursuing a teaching minor in that discipline.

REQUIREMENT 4 Complete 2 options

PROFESSIONAL EDUCATION COMPONENT:

Licensure requirements: Contact Education Student Services, 350 MCKB, 422-3426, to schedule the final interview to clear your application for the secondary teaching license. You should be registered for your last semester at BYU prior to the scheduled appointment.

OPTION 4.1 Complete 3 courses

CPSE 402 - Educating Students with Disabilities in Secondary Classroc	2.0
*SC ED 353 - Multicultural Education for Secondary Education	2.0
SC ED 375 - Adolescent Development and Classroom Management	3.0

OPTION 4.2 Complete 12.0 hours from the following course(s)

MTHED 476 - Secondary Student Teaching in Mathematics	12.0
MTHED 496 - Academic Internship: Secondary Mathematics Educatio	12.0

Student teachers/interns must complete the PIBS form, sign both the mentored teacher and university supervisor PAES forms, and attach their TWS to their MyLink account. All three must be completed to be cleared for graduation.

THE DISCIPLINE:

Mathematics is the discipline through which we make sense of the order, patterns, and quantitative situations we perceive in the world around us. The foundational skills of this discipline–the abilities to formulate, focus and solve problems; to articulate, test and justify conjectures; to communicate one's reasoning about quantities and the relationships between them; and to see connections between different mathematical ideas and real-world contexts–are highly valued in society and are characteristics of any educated person.

Mathematics is not only a body of knowledge but also a process of analysis, reasoning, comparison, deduction, generalization, and problem solving.

Mathematics educators depend heavily upon their own understanding of mathematics in order to identify and articulate the mathematical ideas they want students to learn, to assess which concepts their students already possess that might serve as a foundation for learning, and to develop activities that help students develop rich understandings. They also use their understanding of the nature of the discipline to structure a culture of inquiry, reasoning, and problem solving in their classrooms.

Courses in the undergraduate program are designed to help prospective teachers plan, manage, and implement classroom activities that facilitate students' learning of mathematics. Specific program goals include (1) mastery of the foundational skills of mathematics, (2) deep reflection on mathematics learning at all levels, through observation of and participation in highquality classroom practice, (3) increased autonomy and confidence as an investigator, active learner, and productive thinker, and (4) extended field experience, informed by the best current understanding.

Program faculty include educational and mathematical researchers, specialists in both preservice and inservice teacher education, and school practitioners, spanning a broad range of interest and experience.

CAREER OPPORTUNITIES:

Within Education: Majors in mathematics education prepare for careers teaching mathematics at the middle and high school levels. Graduates can work in organizations that provide tutoring, online education, or distance learning. They can also develop curriculum or educational software. In addition, graduates are well positioned to pursue advanced degrees in mathematics education in order to facilitate professional development at the district and state levels or teach at community college or university levels.

Outside of Education: Because of the extensive mathematics required for the degree, almost any job available to a mathematics graduate is available to mathematics education graduates including computer programming, information technology, operations research, cryptography, and finance. Not only are mathematics education graduates prepared to solve problems in these fields using their mathematical background, but their teaching experience prepares them to communicate their solutions to others who have or do not have mathematics backgrounds.

MAP DISCLAIMER

While every reasonable effort is made to ensure accuracy, there are some student populations that could have exceptions to

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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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