MATHEMATICS (BS) - SECONDARY EDUCATION CONCENTRATION

Program Overview

The BS in Mathematics - Secondary Education Track provides a sound foundation in mathematics, as well as course work necessary for teaching certification at the secondary level. As a part of UTeach Columbus (https://uteach.columbusstate.edu/), this program stresses early field experiences, inquiry based lessons, and highly engaged instruction. Education coursework focuses directly on math and science classroom settings.

All educator preparation programs are approved by the Georgia Professional Standards Commission. In addition to the degree requirements, there are further requirements for teaching certification. Visit the Certification page (https://cqtl.columbusstate.edu/certification.php) on the CSU Center for Quality Teaching and Learning (CQTL) website for detailed information about certification requirements and the certification process.

Career Opportunities

Teaching at the secondary level, trade assistant, quantitative analyst

Program of Study

Code	Title	Credit Hours
Core IMPACTS Area : Institutional Priorities [1]		**4-5**
COMM 1110	Public Speaking	3
ITDS 1779	Scholarship Across the Disciplines	2
LEAD 1705	Introduction to Servant Leadership	2
PERS 1506	Perspectives 1-hour	1
PERS 1507	Perspectives 2-hour	2
Foreign Language Course Options		
ARAB, CHIN, FREN, GERM, GREK, ITAL, JAPN, KREN, LATIN, PORT, SPAN - 1001, 1002, 2001, 2002		
SWAH 1001	Elementary Swahili I	
SWAH 1002	Elementary Swahili II	
Core IMPACTS Area : Mathematics & Quantitative Skills [1]		**3-7**
DATA 1501	Introduction to Data Science	3
MATH 1001	Quantitative Skills and Reasoning	3
MATH 1101	Introduction to Mathematical Modeling	3
MATH 1111	College Algebra	3
MATH 1113	Pre-Calculus	4
MATH 1125	Applied Calculus	3
MATH 1131	Calculus with Analytic Geometry I	4
MATH 1132	Calculus with Analytic Geometry II	4
MATH 1165	Computer-Assisted Problem Solving	3
MATH 1401	Introduction to Statistics	3
MATH 1501	Calculus I	4
MATH 2125	Introduction to Discrete Mathematics	3
STAT 1401	Elementary Statistics	3
Core IMPACTS Area : Political Science and U.S. History		**6**
HIST 2111	U. S. History to 1865	3
or HIST 2112	U. S. History since 1865	
POLS 1101	American Government	3
Core IMPACTS Area : Arts, Humanities, and Ethics		**6**
Select one Fine Arts course		3
ARTH 1100	Art Appreciation	
ARTH 2125	Introduction to the History of Art I– Prehistoric through Gothic	
ARTH 2126	Introduction to the History of Art II– Renaissance through Modern	
MUSC 1100	Music Appreciation	
THEA 1100	Theatre Appreciation	
ITDS 1145	Comparative Arts [2]	
Select one Humanities course		3
ENGL 2111	World Literature I	
ENGL 2112	World Literature II	
ITDS 1774	Introduction to Digital Humanities	
PHIL 2010	Introduction to Philosophy	
ITDS 1145	Comparative Arts [2]	
Core IMPACTS Area : Communicating in Writing		**6**
ENGL 1101	English Composition I	3
ENGL 1102	English Composition II	3
Core IMPACTS Area : Technology, Mathematics, and Sciences [1]		**7-11**
ANTH 1145	Human Origins	3
ASTR 1105	Descriptive Astronomy: The Solar System	3
ASTR 1106	Descriptive Astronomy: Stars and Galaxies	3
ASTR 1305	Descriptive Astronomy Lab	1
ATSC 1112	Understanding the Weather	3
ATSC 1112L	Understanding the Weather Lab	1
BIOL 1125	Contemporary Issues in Biology Non-Lab	3
BIOL 1215K	Introductory Biology	4
BIOL 1225K	Contemporary Issues in Biology with Lab	4
CHEM 1151 & 1151L	Survey of Chemistry I and Survey of Chemistry I Lab	4
CHEM 1152 & 1152L	Survey of Chemistry II and Survey of Chemistry II Lab	4
CHEM 1211 & 1211L	Principles of Chemistry I and Principles of Chemistry I Lab	4
CHEM 1212 & 1212L	Principles of Chemistry II and Principles of Chemistry II Lab	4
CPSC 1105	Introduction to Computing Principles and Technology	3
CPSC 1301K	Computer Science I	4
ENVS 1105	Environmental Studies	3
ENVS 1105L	Environmental Studies Laboratory	1
ENVS 1205K	Sustainability and the Environment	4
GEOG 2215	Introduction to the Geographic Information Systems	3
GEOL 1110	Natural Disasters: Our Hazardous Environment	3
GEOL 1121	Introductory Geoscience I: Physical Geology	3
GEOL 1121L	Introductory Geoscience I: Physical Geology Lab	1
GEOL 1122	Introductory Geo-sciences II: Historical Geology	3
GEOL 1322	Introductory Geo-sciences II: Historical Geology Lab	1

GEOL 2225	The Fossil Record	4
PHYS 1111 & PHYS 1311	Introductory Physics I and Introductory Physics I Lab	4
PHYS 1112 & PHYS 1312	Introductory Physics II and Introductory Physics II Lab	4
PHYS 1125	Physics of Color and Sound	3
PHYS 1325	Physics of Color and Sound Lab	1
PHYS 2211 & PHYS 2311	Principles of Physics I and Principles of Physics I Lab	4
PHYS 2212 & PHYS 2312	Principles of Physics II and Principles of Physics II Lab	4
Core IMPACTS Area : Social Sciences		**6**
Select one Behavioral Science course		
ECON 2105	Principles of Macroeconomics	
ECON 2106	Principles of Microeconomics	
PHIL 2030	Moral Philosophy	
PSYC 1101	Introduction to General Psychology	
SOCI 1101	Introduction to Sociology	
Select one World Cultures course		3
ANTH 1107	Discovering Archaeology	
ANTH 1105	Cultural Anthropology	
ANTH 2105	Ancient World Civilizations	
ANTH 2136	Language and Culture	
ENGL 2136	Language and Culture	
GEOG 1101	World Regional Geography	
HIST 1111	World History to 1500	
HIST 1112	World History since 1500	
ITDS 1155	The Western Intellectual Tradition	
ITDS 1156	Understanding Non-Western Cultures	
Core IMPACTS Total Hours		**42**
Health and Wellness		**3**
KINS 1106 or PHED 1205	Lifetime Wellness Concepts of Fitness	2
Select one PEDS course (https://catalog.columbusstate.edu/course-descriptions/peds/#peds)		

[1] The hours applied in the Institutional Priorities; Mathematics & Quantitative Skills; and Technology, Mathematics, and Sciences areas must add to 18 credit hours.

[2] ITDS 1145 Comparative Arts, though listed under both Fine Arts and Humanities, may be taken only once.

Major Requirements

Code	Title	Credit Hours
Core Requirements		
Complete the core requirements for this program		45
Core Total		45
Field of Study Requirements		
Select the following course (the extra credit is counted in Area G):		3
CPSC 1301K	Computer Science I	
1 Math credit from the following (Area A or D):		1
MATH 1131	Calculus with Analytic Geometry I	
4 Math credits for the following or 1 credit from Area D:		1-4
MATH 1132	Calculus with Analytic Geometry II	
MATH 2115	Introduction to Linear Algebra	3
MATH 2135	Calculus with Analytic Geometry 3	4
STAT 1401	Elementary Statistics	3
Guided Elective [1]		0-3
Field of Study Requirements Total		18
Required for the Major		
1 credit from the following (Area F):		1
CPSC 1301K	Computer Science I	
MATH 2125	Introduction to Discrete Mathematics	3
MATH 3106	Mathematical Theory of Interest	3
MATH 3155	Introduction to Mathematical Proofs	3
MATH 3175	Introduction to Probability	3
MATH 5111U	Introduction to Abstract Algebra I	3
MATH 5135U	College Geometry	3
MATH 5175U	Mathematical Statistics	3
UTeach Columbus Teaching Option: [2]		
SPED 4115	Teaching Math and Science to Exceptional Learners (Students must earn a grade of B or better in order to be certified to teach in the state of Georgia.)	2
UTCH 1201	Step I: Inquiry Approaches to Teaching	1
UTCH 1202	Step II: Inquiry-Based Lesson Design	1
UTCH 2105	Knowing and Learning in Mathematics and Science	3
UTCH 2203	Step III: Technological and Pedagogical Content Knowledge	3
UTCH 3115	Functions and Modeling for Secondary Mathematics Teachers	3
UTCH 3205	Classroom Interactions	3
UTCH 4205	Inquiry-Based Instruction	3
UTCH 4485	Student Teaching	9
UTCH 4795	Student Teaching Seminar	1
Required for the Major Total		51
Major Electives		
Select 6 credits of MATH or STAT courses at 3000-level or higher.		6
Major Electives Total		6
General Electives [3]		
Select 3 semester hours of courses of general electives at 1000-level or higher.		3
General Electives Total		3
Total Credit Hours		**123**

[1] Guided elective will be selected from among freshman and sophomore level courses in science, business, and education based upon student interests and career goals and requiring the approval of a faculty advisor and the Mathematics Department Chair.

[2] Only two attempts allowed for each of the following courses.

[3] If MATH 1113: Pre-Calculus is taken for Area A Math, one credit hour will count in Area I.

Program Map

Course	Title	Credit Hours
First Year		
Fall		
MATH 1113	Pre-Calculus (minimum grade of C)	4
	(Apply 3 credits to Area A and 1 credit to Area I.)	
ENGL 1101	English Composition I (minimum grade of C)	3
Area B1	COMM 1110 Public Speaking or Foreign Language	3
UTCH 1201	Step I: Inquiry Approaches to Teaching (minimum grade of C)	1
STAT 1401	Elementary Statistics (minimum grade of C)	3
Area B2	ITDS 1779 (2), LEAD 1705 (2), PERS 1506 (1; may be repeated with different topic), PERS 1507 (2)	1
	Credit Hours	**15**
Spring		
MATH 1131	Calculus with Analytic Geometry I (minimum grade of C)	4
	(Apply 3 credits to Area D and 1 credit to Area F.)	
ENGL 1102	English Composition II (minimum grade of C)	3
UTCH 1202	Step II: Inquiry-Based Lesson Design (minimum grade of C)	1
MATH 2125	Introduction to Discrete Mathematics (minimum grade of C)	3
CPSC 1301K	Computer Science I (minimum grade of C)	4
	(Apply 3 credits to Area F and 1 credit to Area G.)	
	Credit Hours	**15**
Second Year		
Fall		
MATH 1132	Calculus with Analytic Geometry II (minimum grade of C) [1]	4
MATH 2115	Introduction to Linear Algebra (minimum grade of C)	3
MATH 3155	Introduction to Mathematical Proofs (minimum grade of C)	3
UTCH 2105	Knowing and Learning in Mathematics and Science (minimum grade of C)	3
AREA E	World Cultures	3
	Credit Hours	**16**
Spring		
MATH 3106	Mathematical Theory of Interest (minimum grade of C)	3
MATH 3175	Introduction to Probability (minimum grade of C)	3
MATH 5111U	Introduction to Abstract Algebra I (minimum grade of C)	3
UTCH 3115	Functions and Modeling for Secondary Mathematics Teachers (minimum grade of C)	3

Course	Title	Credit Hours
MATH 2135	Calculus with Analytic Geometry 3 (minimum grade of C)	4
	Credit Hours	**16**
Third Year		
Fall		
MATH 5175U	Mathematical Statistics (minimum grade of C)	3
MATH 5135U	College Geometry (minimum grade of C)	3
AREA D	Lab Science	4
AREA C	Humanities (recommend ITDS 2125 Historical Perspectives on the Philosophy of Science and Mathematics)	3
UTCH 2203	Step III: Technological and Pedagogical Content Knowledge (minimum grade of C)	3
	Credit Hours	**16**
Spring		
AREA H	Program Elective	3
AREA H	Program Elective	3
AREA E	Behavioral Science	3
UTCH 3205	Classroom Interactions (minimum grade of C)	3
AREA D	Lab Science	4
	Credit Hours	**16**
Fourth Year		
Fall		
AREA C	Fine Arts	3
POLS 1101	American Government	3
AREA I	General Elective	2
UTCH 4205	Inquiry-Based Instruction (minimum grade of C)	3
KINS 1106 or PHED 1205	Lifetime Wellness or Concepts of Fitness	2
PEDS		1
HIST 2111 or HIST 2112	U. S. History to 1865 or U. S. History since 1865	3
	Credit Hours	**17**
Spring		
UTCH 4485	Student Teaching (minimum grade of C)	9
UTCH 4795	Student Teaching Seminar (minimum grade of C)	1
SPED 4115	Teaching Math and Science to Exceptional Learners (minimum grade of C; see note below)	2
There is a recent rule change for certification from the GaPSC. As of July 1, 2019, students must make a B or higher in the Exceptional Children's course. The course could be any of the following depending on your major: SPED 2256, EDCI 6228, KINS 4245, SPED 4115, PHED 6219 This rule change will not affect your graduation but you cannot become a certified educator with the state of Georgia until you receive the grade of B or higher in this course.		
	Credit Hours	**12**
	Total Credit Hours	**123**

[1] If MATH 1132 Calculus with Analytic Geometry II is used in Area D, the one extra hour will count in Area F.

[2] If ITDS 2125 Historical Perspectives on the Philosophy of Science and Mathematics is applied to Area G, then choose another course for Area C and take that it in another semester.

Admission Requirements

During the sophomore year, students intending to complete a teacher education program make formal application to the teacher education program. Normally, this occurs after the student has completed three semesters of full-time course work. For a list of current admission requirements, go to https://cqtl.columbusstate.edu/teacher-education (https://cqtl.columbusstate.edu/teacher-education.php)

Additional Program Requirements

Students must complete all courses related to major with a C or better unless otherwise approved.

For teacher certification, students must obtain a minimum overall and CSU grade point average of 2.5.

Students must meet all requirements for admission to Teacher Education. For a list of current requirements, go to https://cqtl.columbusstate.edu/teacher-education.php

Students must meet all requirements for admission to Student Teaching. For a list of current requirements, go to https://cqtl.columbusstate.edu/student-teaching.php.

To be recommended for teacher certification, students must pass the GACE Mathematics Test I and Test II (for additional information on the GACE, go to https://gace.ets.org/).