

MATHEMATICS (BS) - APPLIED MATHEMATICAL SCIENCES

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	Lifetime Wellness	2
	or PHED 1205 Concepts of Fitness	

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
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Core Requirements

Complete the core requirements for this program	45
Core Total	45

Field of Study Requirements

18

Select the following course (the extra credit is counted in Area G):

CPSC 1301K Computer Science I (One credit hour is counted in Area G.)

1 Math credit from the following (Area A or D):

MATH 1131 Calculus with Analytic Geometry I (One math credit from Area A or D.)

4 Math credits for the following or 1 credit from Area D:

MATH 1132 Calculus with Analytic Geometry II (4 semester hours or 1 semester hour from Area D.)

MATH 2115 Introduction to Linear Algebra

MATH 2135 Calculus with Analytic Geometry 3

STAT 1401 Elementary Statistics

Guided elective (0 or 3 hours)

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 adviser and the Mathematics Department Chair

Required for the Major

19-20

CPSC 1301K Computer Science I (One credit hour from Area F)

1 credit if taken for Area A Math:

MATH 1113 Pre-Calculus (1 hour if taken in Area A math.)

MATH 2125 Introduction to Discrete Mathematics

MATH 5125U	Discrete Mathematics
MATH 3175	Introduction to Probability
MATH 3139	Mathematical Preparation for Business, Industrial, and Government Careers
MATH 3107	Differential Equations
MATH 5175U	Mathematical Statistics

Major Electives

15

Select five of the following courses.

MATH 3106	Mathematical Theory of Interest
MATH 3108	Introduction to Actuarial Science
MATH 5126U	Actuarial Regression and Time Series
FINC 3105	Principles of Finance
FINC 3115	Corporate Financial Analysis
STAT 3127	Statistical Computing
STAT 5177U	Applied Regression Analysis
STAT 5117U	Applied Multivariate Analysis
DATA 3111	Data Mining I
DATA 3112	Data Mining II
DATA 3116	Ethics and Data Analytics
DATA 3215	Data Analytics Project
DATA 4698	Data Analytics Internship

General Electives Required Hours

25-26

Select 9 semester hours of courses at 3000-level or higher AND Select 16-17 hours of courses at 1000-level or higher.

Recommended for students interested in Actuarial Science:

ACCT 2101	Principles of Accounting I
ECON 2105	Principles of Macroeconomics
ECON 2106	Principles of Microeconomics

Recommended for students interested in Data Science

CPSC 1302K	Computer Science II
CPSC 3131	Database Systems I
CPSC 2108	Data Structures
CYBR 2160	Intro to Information Security
CYBR 4160	Applied Cryptography

Total Credit Hours

123