# MATHEMATICS (BS) - APPLIED MATHEMATICAL SCIENCES

## Program of Study

| Code | Title | Credit Hours |
|---|---|---|
| **Core IMPACTS Area : Institutional Priorities** [1] | | **4-5** |
| Choose one of the following communication options | | 3 |
| COMM 1110 | Public Speaking | |
| Foreign Language Course Options | | |
| AMSL, ARAB, CHIN, FREN, GERM, GREK, ITAL, JAPN, KREN, LATIN, PORT, SPAN - 1001, 1002, 2001, 2002; SWAH - 1001, 1002. | | |
| Take one of the following courses | | 1-2 |
| ITDS 1779 | Scholarship Across the Disciplines | |
| LEAD 1705 | Introduction to Servant Leadership | |
| PERS 1506 | Perspectives 1-hour | |
| PERS 1507 | Perspectives 2-hour | |
| **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 1155 | The Western Intellectual Tradition | |
| 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** [1,3] | | **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 | |

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| 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 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 of the following | | 1 |
| Any PEDS course | | |
| MUSC 1206 | Body Mapping (Music Majors Only) | |

[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.

[3] At least 4 of the credit hours in this area must be in a lab science course.

Major Requirements

| Code | Title | Credit Hours |
|---|---|---|
| **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 Required for the Major): | | |
| CPSC 1301K | Computer Science I (One credit hour is counted in Required for Major) | |
| MATH 1131 | Calculus with Analytic Geometry I [1] | |
| MATH 1132 | Calculus with Analytic Geometry II [1] | |
| 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) | |
| 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** |