

EARTH AND SPACE SCIENCE (BS) - ASTROPHYSICS AND PLANETARY GEOLOGY TRACK

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 | | |
| Minimum grade of C is required | | |
| ASTR 1105 | Descriptive Astronomy: The Solar System | 3 |
| ATSC 1112 | Understanding the Weather | 3 |
| ENVS 1205K | Sustainability and the Environment | 4 |
| GEO 1121 | Introductory Geoscience I: Physical Geology ("C" or better required in each course) | 3 |
| GEO 1121L | Introductory Geoscience I: Physical Geology Lab ("C" or better required in each course) | 1 |
| Select one of the following sequences: | | 4 |
| Sequence 1: | | |
| PHYS 1111 | Introductory Physics I | |
| PHYS 1311 | Introductory Physics I Lab | |
| Sequence 2: | | |
| PHYS 2211 | Principles of Physics I | |
| PHYS 2311 | Principles of Physics I Lab | |
| Field of Study Requirements Total | | 18 |
| Required for the Major | | |
| Minimum grade of C is required | | |

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| ASTR 1106 | Descriptive Astronomy: Stars and Galaxies | 3 |
| ASTR 1305 | Descriptive Astronomy Lab | 1 |
| ASTR 3105 | Physics, Chemistry, and Geology of the Solar System | 3 |
| ASTR 3115 | Introduction to Astrophysics | 3 |
| ASTR 3205 | Observational Techniques for Astrophysics | 4 |
| ENGR 2165 | Thermodynamics | 3 |
| GEO 3201 | Mineralogy and Petrology I | 4 |
| Select one of the following PHYS sequences: | | 4 |
| Sequence 1: | | |
| PHYS 1112 | Introductory Physics II | |
| PHYS 1312 | Introductory Physics II Lab | |
| Sequence 2: | | |
| PHYS 2212 | Principles of Physics II | |
| PHYS 2312 | Principles of Physics II Lab | |
| PHYS 3100 | Waves and Optics | 3 |
| PHYS 3200 | Twentieth Century Physics | 4 |
| PHYS 4100 | Survey of Quantum Mechanics | 3 |
| Required for the Major Total | | 35 |

Major Electives

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| Select at least 25 credits in Program Electives | | 25 |
| ATSC 5117U | Global and Climate Change | |
| MATH 1132 | Calculus with Analytic Geometry II (if not taken in Area D) | |
| ATSC 5116U | Meteorology | |
| ASTR 4899 | Undergraduate Research in Astronomy | |
| ASTR 5555U | Special Topics in Astronomy and Astrophysics | |
| ASTR 4960 | Astronomy Senior Thesis | |
| ANTH 5226U | Culture and Environment | |
| BIOL 3215K | Cell Biology | |
| BIOL 3216K | Genetics | |
| DATA 3111 | Data Mining I | |
| DATA 3112 | Data Mining II | |
| GEO 3201 | Mineralogy and Petrology I | |
| GEO 4201 | Mineralogy and Petrology II | |
| GEO 3201 | Mineralogy and Petrology I | |
| GEO 3265 | Stratigraphy and Basin Analysis | |
| GEO 3275 | Mapping and Field Geology | |
| GEO 4275 | Structural Geology | |
| GEO 4795 | Senior Geology Seminar | |
| GEO 5115U | Geochemistry | |
| GEO 5135U | Oceanography | |
| GEO 5258U | Field Methods in the Earth and Environmental Sciences | |
| GEO 5165U | Hydrology | |
| GEO 5215U | Geomorphology | |
| GEO 5555U | Selected Topics in Geology | |
| ISCI 5555U | Contemporary Topics in Science | |
| MATH 3107 | Differential Equations | |
| MATH 5175U | Mathematical Statistics | |
| PHYS 4899 | Undergraduate Research in Physics | |
| STAT 3127 | Statistical Computing | |
| UTCH 3215 | Research Methods | |

The following courses may be taken in Major Electives provided the required minimum of 39 upper level credit hours has been met:

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| ATSC 1112L | Understanding the Weather Lab | |
| BIOL 1215K | Introductory Biology | |
| CHEM 2115 | Quantitative Chemical Analysis | |
| CHEM 2315 | Quantitative Chemical Analysis Lab | |
| CPSC 1301K | Computer Science I | |
| CPSC 1302K | Computer Science II | |
| DATA 1501 | Introduction to Data Science | |
| ENGR 2206 | Digital Logic | |
| ENGR 2217 | Robotics Engineering Design | |
| GEOG 2215 | Introduction to the Geographic Information Systems | |
| MATH 2115 | Introduction to Linear Algebra | |
| MATH 2135 | Calculus with Analytic Geometry 3 | |
| PHYS 1125 | Physics of Color and Sound | |
| PHYS 1325 | Physics of Color and Sound Lab | |
| STAT 1401 | Elementary Statistics | |
| Other PHYS, GEOL, ENVS, ASTR, ATSC, CHEM, ENGR, CPSC or MATH courses may be used toward Major Electives requirements as approved by the student's advisor. | | |
| Major Electives Total | | 25 |
| Total Credit Hours | | 123 |