

PHYSICAL SCIENCE, Associate in Science Degree - 3076

Science Department

CIP Code: 40.0101

The Physical Science AS degree provides students with the firm foundation in mathematics, science, and liberal arts necessary to transfer to and succeed in a baccalaureate degree program in astronomy, geology, meteorology, physics, and physical science. This program offers two tracks for the Physical Science AS degree: **Geology** or a **General Physical Science**. The **Geology Track** is for students intending to go on to degrees in the Geology or Environmental Science fields. The **General Physical Science Track** is for students intending to go on to degrees in Physics, Astronomy, Meteorology, or Physical Science. With appropriate further education, graduates may find jobs in astronomical research and/or planetarium operations (astronomy), the petroleum industry, the mining industry, or within a government agency (geology). They may also find employment at the National Weather Service as a weather researcher, or broadcasting (meteorology); within research and development at a university or in private industry, at a national laboratory, inspection, testing, and quality control, or other production-related jobs (physics); or as an environmental consultant or lawyer. Since the requirements of senior institutions and their degree programs vary widely, it is recommended that students choose an intended transfer institution as soon as possible and carefully align their course sequence with the program described in that institution's catalog. The entire program can be completed at the Harrisburg Campus through on-campus/in-person instruction. The *General Physical Science track* may be completed at the Lancaster Campus through on-campus/in-person instruction. Students may complete 75% of *Geology track* at the Lancaster Campus through on-campus/in-person instruction. The remaining coursework must be completed through various modalities (e.g., hybrid, synchronous remote instruction and asynchronous instruction). Lastly, this program may be completed at the York Campus through various modalities (e.g., hybrid, synchronous remote instruction and asynchronous instruction) in addition to on-campus/in-person instruction. Please note that students taking this program at the York Campus will need to attend a few of the required courses at either the Harrisburg or Lancaster campuses.

Transfer Opportunities

This transfer curriculum is provided as a guide for students planning to transfer to a baccalaureate degree granting institution. With appropriate further education, graduates may find jobs in astronomical research and/or planetarium operations (astronomy), the petroleum industry, the mining industry, or within a government agency (geology). They may also find employment at the National Weather Service as a weather researcher, or broadcasting (meteorology); within research and development at a university or in private industry, at a national laboratory, inspection, testing, and quality control, or other production-related jobs (physics); or as an environmental consultant or lawyer.

Competency Profile

This curriculum is designed to prepare graduates of the program to:

- Transfer to and succeed in a baccalaureate program
- Ability to apply scientific principles and concepts including the scientific method to a variety of problems and situation
- Knowledge of scientific methods accomplishments and how they affect technology, politics and society
- Demonstrate computer literacy in data manipulation, mining, and analysis
- Perform technical work in a typical laboratory while following appropriate safety procedures
- Effectively communicate results both orally and through written reports
- Demonstrate information literacy by appropriately vetting online information sources for truthfulness and scientific validity

PROGRAM REQUIREMENTS (TOTAL CREDITS = 62)

| General Education | | Major Requirements | | Other Required Courses | |
|--|-----|---|----|------------------------|---|
| ENGL 101 English Composition I | 3 | CHEM 102 General Inorganic Chemistry/Qual. Analysis | 4 | Transfer Electives | 6 |
| ENGL 102 English Composition II (or) | 3 | MATH 122 Calculus II | 4 | | |
| ENGL 104 Technical Writing | (3) | PHYS 212 Physics for Scientists & Engineers II | 4 | | |
| COMM 101 Effective Speaking | 3 | General Physical Sciences** (or) Geology Tracks | 15 | | |
| Humanities & Arts Core Elective* | 3 | | 27 | | |
| Mathematics Core Elective - MATH 121 | 4 | | | | |
| Mathematics or Science Core Elective - PHYS 211 | 4 | | | | |
| Science w/ a Laboratory Core Elective - CHEM 101 | 4 | | | | |
| Social & Behavioral Science Core Elective | 3 | | | | |
| First-Year-Seminar Elective (Rec: SCI 100) | 1 | | | | |
| Wellness | 1 | | | | |
| | 29 | | | | |

*Students are to select courses from the following: ART 181 or 182; ENGL 206; FMTH 101; HUM 101, 115 or 201; MUS 104; PHIL 200; or a foreign language course.

**** Students are to select 15-credits from the courses listed in the General Physical Sciences Track.**

General Physical Sciences Track**

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|---|-----------|
| CHEM 203 Organic Chemistry | 4 |
| CHEM 204 Organic Chemistry II | 4 |
| CPS 121 JAVA Programming | 3 |
| CPS 135 C Programming | 3 |
| CPS 161 Computer Science I | 3 |
| CPS 162 Computer Science II | 3 |
| GEOL 101 Physical Geology | 4 |
| GEOL 102 Historical Geology | 4 |
| GEOL 201 Environmental Geology | 4 |
| GIS 141 Introduction GIS | 3 |
| GIS 165 Geospatial Programming | 3 |
| GIS 205 Data Acquisition & Remote Sensing | 4 |
| MATH 220 Linear Algebra | 4 |
| MATH 221 Calculus III | 4 |
| | 15 |

Geology Track

| | |
|---|-----------|
| GEOL 101 Physical Geology | 4 |
| GEOL 102 Historical Geology | 4 |
| GEOL 201 Environmental Geology | 4 |
| GIS 141 Introduction to Geospatial Technology | 3 |
| | 15 |

RECOMMENDED SEQUENCE FOR FULL-TIME STUDENTS

Part-time students can complete this program by taking one or more courses each semester.

General Physical Science Track

| Fall Semester I | | Spring Semester I | | Fall Semester II | | Spring Semester II | |
|-------------------|---|------------------------------------|---|-------------------------------------|---|---|---|
| CHEM 101 | 4 | CHEM 102 | 4 | COMM 101 | 3 | PHYS 212 | 4 |
| ENGL 101 | 3 | ENGL 102 or 104 | 3 | PHYS 211 | 4 | Physical Science Option Electives** | 6 |
| FYS Elective | 1 | Humanities/Arts Core Elective* | 3 | Physical Science Option Electives** | 6 | Social/Behavioral Science Core Elective | 3 |
| MATH 121 | 4 | MATH 122 | 4 | Transfer Elective | 3 | Wellness | 1 |
| Transfer Elective | 3 | Physical Science Option Elective** | 3 | | | | |

Geology Track

| Fall Semester I | | Spring Semester I | | Fall Semester II | | Spring Semester II | |
|-------------------|---|------------------------|---|--------------------------------|---|---|---|
| CHEM 101 | 4 | CHEM 102 | 4 | COMM 101 | 3 | GEOL 201 | 4 |
| ENGL 101 | 3 | ENGL 102 or 104 | 3 | GEOL 102 | 4 | PHYS 212 | 4 |
| FYS Elective | 1 | GEOL 101 | 4 | GIS 141 | 3 | Social/Behavioral Science Core Elective | 3 |
| MATH 121 | 4 | MATH 122 | 4 | Humanities/Arts Core Elective* | 3 | Transfer Elective | 3 |
| Transfer Elective | 3 | | | PHYS 211 | 4 | Wellness | 1 |