<table>
<thead>
<tr>
<th>University Core Requirements</th>
<th>Suggested Sequence of Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>University Core Requirements:</strong></td>
<td><strong>FRESHMAN YEAR</strong></td>
</tr>
<tr>
<td><strong>Requirements</strong></td>
<td>1st Semester</td>
</tr>
<tr>
<td><strong>Classes</strong></td>
<td><strong>Hours</strong></td>
</tr>
<tr>
<td>Religion Cornerstones</td>
<td></td>
</tr>
<tr>
<td>Teachings and Doctrine of The Book of Mormon</td>
<td>PHSCS 121 (FWSp)</td>
</tr>
<tr>
<td>Jesus Christ and the Everlasting Gospel</td>
<td>PHSCS 191 (F)</td>
</tr>
<tr>
<td>Foundations of the Restoration</td>
<td>MATH 112 (FWSpSu)</td>
</tr>
<tr>
<td>The Eternal Family</td>
<td>First-year Writing</td>
</tr>
<tr>
<td></td>
<td>General Electives</td>
</tr>
<tr>
<td></td>
<td>Religion Cornerstone course</td>
</tr>
<tr>
<td><strong>Total Hours</strong></td>
<td>14.5</td>
</tr>
<tr>
<td>The Individual and Society</td>
<td></td>
</tr>
<tr>
<td>American Heritage</td>
<td>1-2</td>
</tr>
<tr>
<td>Global and Cultural Awareness</td>
<td>from approved list</td>
</tr>
<tr>
<td><strong>Skills</strong></td>
<td></td>
</tr>
<tr>
<td>First Year Writing</td>
<td>1</td>
</tr>
<tr>
<td>Advanced Written and Oral Communications</td>
<td>PHSCS 416 or WRTG 316</td>
</tr>
<tr>
<td>Quantitative Reasoning</td>
<td>1</td>
</tr>
<tr>
<td>Languages of Learning (Math or Language)</td>
<td>MATH 112*</td>
</tr>
<tr>
<td><strong>Arts, Letters, and Sciences</strong></td>
<td><strong>Total Hours</strong></td>
</tr>
<tr>
<td>Civilization 1</td>
<td>1</td>
</tr>
<tr>
<td>Civilization 2</td>
<td>from approved list</td>
</tr>
<tr>
<td>Arts</td>
<td>1</td>
</tr>
<tr>
<td>Letters</td>
<td>from approved list</td>
</tr>
<tr>
<td>Biological Science</td>
<td>1</td>
</tr>
<tr>
<td>Physical Science</td>
<td>from approved list</td>
</tr>
<tr>
<td>Social Science</td>
<td>1</td>
</tr>
</tbody>
</table>

**Core Enrichment: Electives** |

| Religion Electives | 3-4 | 6.0 | from approved list |
| Open Electives | Variable | Variable | personal choice |

**Graduation Requirements:** |

| Minimum residence hours required | 30.0 |
| Minimum hours needed to graduate | 120.0 |

Note: Students are encouraged to complete an average of 15 credit hours each semester or 30 credit hours each year, which could include spring and/or summer terms. Taking fewer credits substantially increases the cost and the number of semesters to graduate.
BS in Applied Physics (694825)
2021-2022 Program Requirements (62 - 64 Credit Hours)

**REQUIREMENT 1:** Complete 17 courses

No more than 3 hours of D credit is allowed in major courses.

Consult with a faculty advisor as early as possible to choose electives.

**NOTE:** PHSCS 191 SHOULD BE TAKEN THE FIRST SEMESTER AS A FRESHMAN.

**PHSCS 291 SHOULD BE TAKEN THE FIRST SEMESTER AS A SOPHOMORE.**

C S 142 - Introduction to Computer Programming 3.0
MATH 113 - Calculus 2 4.0
PHSCS 122 - Introduction to Newtonian Mechanics 4.0
PHSCS 123 - Introduction to Waves, Optics, and Thermodynamics 3.0
PHSCS 191 - Introduction to Physics Careers and Research 1 0.5
PHSCS 220 - Introduction to Electricity and Magnetism 3.0
PHSCS 225 - Introduction to Experimental Physics 2.0
PHSCS 230 - Computational Physics Lab 1 1.0
PHSCS 240 - Design, Fabrication, and Use of Scientific Apparatus 2.0
PHSCS 245 - Experiments in Contemporary Physics 2.0
PHSCS 291 - Introduction to Physics Careers and Research 2 0.5
PHSCS 318 - Introduction to Mathematical Physics 3.0
PHSCS 321 - Mechanics 3.0
PHSCS 330 - Computational Physics Lab 2 1.0
PHSCS 430 - Computational Physics Lab 3 1.0
PHSCS 441 - Electricity and Magnetism 3.0

**REQUIREMENT 2:** Complete 3 courses

**NOTE:** PHSCS 442 OR EC EN 462 PRIOR TO TAKING EC EN 466. INTERESTED AS THE STUDENT HAS TAKEN PHSCS 441. HOWEVER, IT IS STILL SPECIFICALLY, EC EN 466 CAN BE TAKEN WITH NO OTHER PREREQS AS LONG PREREQUISITES, THEY ARE OFTEN WAIVED FOR APPLIED PHYSICS MAJORS.

**PHSCS 442** - Computational Physics Lab 1 2.0
**PHSCS 471** - Principles of Optics 3.0

**REQUIREMENT 3:** Complete 1 course

COMPLETE 1.0 hours from the following courses:

PHSCS 430 - Computational Physics Lab 3 1.0
PHSCS 441 - Electricity and Magnetism 3.0

**REQUIREMENT 4:** Complete 1 option

**OPTION 4.1:** Complete 2 courses

MATH 302 - Mathematics for Engineering 1 4.0
MATH 303 - Mathematics for Engineering 2 4.0

**OPTION 4.2:** Complete 3 courses

MATH 313 - Not currently offered 3.0
MATH 314 - Calculus of Several Variables 3.0
MATH 334 - Ordinary Differential Equations 3.0

**OPTION 4.3:** Complete 4 courses

MATH 213 - Elementary Linear Algebra 2.0
MATH 215 - Computational Linear Algebra 1.0
MATH 314 - Calculus of Several Variables 3.0
MATH 334 - Ordinary Differential Equations 3.0

**REQUIREMENT 5:** Complete 2.0 hours from the following options

**COMPLETE A CAPSTONE PROJECT OR SENIOR THESIS INCLUDING THE FOLLOWING:**

A. Choose a research mentor and group as early as possible, starting with information in PHSCS 191 and 291, and discussions with faculty, your advisor, and the capstone project coordinator or senior thesis coordinator. It is best to start as a freshman or sophomore.

Interdisciplinary work in other departments or in internships is possible.

**OPTION 5.1:** Complete 2.0 hours from the following courses

PHSCS 492R - Capstone Project in Applied Physics 2.0
PHSCS 498R - Senior Thesis 3.0

You may take up to 2 credit hours.

**OPTION 5.2:** Complete 2.0 hours of one of the following:

PHSCS 492R - Capstone Project in Applied Physics 2.0
PHSCS 498R - Senior Thesis 3.0

You may take up to 2 credit hours.

**REQUIREMENT 6:** Complete 2.0 hours from the following courses

PHSCS 492R - Capstone Project in Applied Physics 2.0
PHSCS 498R - Senior Thesis 3.0

You may take up to 2 credit hours.

**CAREER OPPORTUNITIES:**

A degree in physics or physics-astronomy can provide: 1. Preparation for those who intend to enter industrial or governmental service as physicists or astronomers. 2. Education for those who intend to pursue graduate work in physics or astronomy. 3. Education in the subject matter of physics for prospective teachers of the physical sciences. 4. Undergraduate education for those who will pursue graduate work in the professions: business (e.g., an MBA), law, medicine, etc. 5. Fundamental background for other physical sciences and engineering, in preparation for graduate study in these fields. 6. Physics fundamentals required by the biological science, medical, dental, nursing, and related programs. For more information, see www.physics.byu.edu/undergraduate/careers.

**THE DISCIPLINE:**

Over the centuries physicists and astronomers have studied the fundamental principles that govern the structure and dynamics of matter and energy in the physical world, from subatomic particles to the cosmos. Physicists also apply this understanding to the development of new technologies. For example, physicists invented the first lasers and semiconductor electronic devices. Physics and astronomy students learn to approach complex problems in science and technology from a broad background in mechanics, electricity and magnetism, statistical and thermal physics, quantum mechanics, relativity, and optics. The tools students develop at BYU include problem solving by mathematical and computational modeling, as well as experimental discovery and analysis. All students gain professional experience in a research, capstone, or internship project, usually in close association with faculty. Together these experiences can provide excellent preparation for employment or for graduate studies in physics, other sciences, engineering, medicine, law, or business. Most physicists and astronomers work in research and development in industrial, government, or university labs to solve new problems in technology and science. They also share the beauty discovered in our physical universe by teaching in high schools, colleges, and universities.
MAP DISCLAIMER
While every reasonable effort is made to ensure accuracy, there are some student populations that could have exceptions to listed requirements. Please refer to the university catalog and your college advisement center/department for complete guidelines.

DEPARTMENT INFORMATION
FACULTY ADVISORS ASSIGNED BY LAST TWO DIGITS OF BYU ID NUMBER. CONTACT:

Department of Physics and Astronomy
Brigham Young University
N-283 ESC
Provo, UT 84602
Telephone: (801) 422-4361

ADVISEMENT CENTER INFORMATION
Physical and Mathematical Sciences College Advisement Center
Brigham Young University
N-181 ESC
Provo, UT 84602
Telephone: (801) 422-2674