## University Core Requirements:

### Religion Cornerstones
- **Teachings and Doctrine of The Book of Mormon**
  - Classes: 1
  - Hours: 2.0
  - Classes: REL A 275
- **Jesus Christ and the Everlasting Gospel**
  - Classes: 1
  - Hours: 2.0
  - Classes: REL A 250
- **Foundations of the Restoration**
  - Classes: 1
  - Hours: 2.0
  - Classes: REL C 225
- **The Eternal Family**
  - Classes: 1
  - Hours: 2.0
  - Classes: REL C 200

### The Individual and Society
- **American Heritage**
  - Classes: 1-2
  - Hours: 3-6.0
  - Classes: from approved list
- **Global and Cultural Awareness**
  - Classes: 1
  - Hours: 3.0
  - Classes: SC ED 353* (FWSp)

### Skills
- **First Year Writing**
  - Classes: 1
  - Hours: 3.0
  - Classes: from approved list
- **Advanced Written and Oral Communications**
  - Classes: 1
  - Hours: 3.0
  - Classes: PHSCS 416 or ENGL 316 (FW)*
- **Quantitative Reasoning**
  - Classes: 1
  - Hours: 4.0
  - Classes: MATH 112*
- **Languages of Learning (Math or Language)**
  - Classes: 1
  - Hours: 4.0
  - Classes: MATH 112*

### Arts, Letters, and Sciences
- **Civilization 1**
  - Classes: 1
  - Hours: 3.0
  - Classes: from approved list
- **Civilization 2**
  - Classes: 1
  - Hours: 3.0
  - Classes: from approved list
- **Arts**
  - Classes: 1
  - Hours: 3.0
  - Classes: from approved list
- **Letters**
  - Classes: 1
  - Hours: 3.0
  - Classes: PHIL 423*
- **Biological Science**
  - Classes: 1
  - Hours: 3-4.0
  - Classes: from approved list
- **Physical Science**
  - Classes: 1
  - Hours: 3.0
  - Classes: PHSCS 222*
- **Social Science**
  - Classes: 1
  - Hours: 3.0
  - Classes: from approved list

### Core Enrichment: Electives
- **Religion Electives**
  - Classes: 3-4
  - Hours: 6.0
  - Classes: from approved list
- **Open Electives**
  - Classes: Variable
  - Hours: Variable
  - Classes: personal choice

*THESE CLASSES FILL BOTH UNIVERSITY CORE AND PROGRAM REQUIREMENTS (13 hours overlap)*

## Graduation Requirements:
- **Minimum residence hours required**: 30.0
- **Minimum hours needed to graduate**: 120.0
## BS in Physics Education (694828)
### 2019-2020 Program Requirements (77.5 - 79.5 Credit Hours)

### REQUIREMENT 1
Complete 10 courses
**NOTE:** PHSCS 191 SHOULD BE TAKEN THE FIRST SEMESTER.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 112</td>
<td>Calculus 1</td>
<td>4.0</td>
</tr>
<tr>
<td>MATH 113</td>
<td>Calculus 2</td>
<td>4.0</td>
</tr>
<tr>
<td>PHSCS 121</td>
<td>Introduction to Newtonian Mechanics</td>
<td>3.0</td>
</tr>
<tr>
<td>PHSCS 123</td>
<td>Introduction to Waves, Optics, and Thermodynamics</td>
<td>3.0</td>
</tr>
<tr>
<td>PHSCS 127</td>
<td>Descriptive Astronomy</td>
<td>3.0</td>
</tr>
<tr>
<td>PHSCS 191</td>
<td>Introduction to Physics Careers and Research 1</td>
<td>0.5</td>
</tr>
<tr>
<td>PHSCS 220</td>
<td>Introduction to Electricity and Magnetism</td>
<td>3.0</td>
</tr>
<tr>
<td>&quot;PHSCS 222&quot;</td>
<td>Modern Physics</td>
<td>3.0</td>
</tr>
<tr>
<td>PHSCS 225</td>
<td>Introduction to Experimental Physics</td>
<td>2.0</td>
</tr>
<tr>
<td>PHSCS 240</td>
<td>Design, Fabrication, and Use of Scientific Apparatus</td>
<td>2.0</td>
</tr>
</tbody>
</table>

### REQUIREMENT 2
Complete 1 option

#### OPTION 2.1
Complete 2 courses

| Math 302    | Mathematics for Engineering 1                    | 4.0   |
| Math 303    | Mathematics for Engineering 2                    | 4.0   |

#### OPTION 2.2
Complete 3 courses

| Math 313    | - (Not currently offered)                        |       |
| Math 314    | - Calculus of Several Variables                  | 3.0   |
| Math 334    | - Ordinary Differential Equations                | 3.0   |

#### OPTION 2.3
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 3
Complete 3 courses

| PHSCS 310   | Physics By Inquiry: Mechanics                    | 3.0   |
| PHSCS 311   | Physics By Inquiry: Electricity                  | 3.0   |

### REQUIREMENT 4
Complete 9.0 hours from the following option(s)

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP&amp;T 371</td>
<td>Integrating K-12 Educational Technology 1</td>
<td>1.0</td>
</tr>
<tr>
<td>IP&amp;T 372</td>
<td>Integrating K-12 Educational Technology 2</td>
<td>1.0</td>
</tr>
<tr>
<td>PHYS 376</td>
<td>Exploration of Teaching</td>
<td>4.0</td>
</tr>
<tr>
<td>PHYS 377</td>
<td>Teaching Methods and Instruction</td>
<td>3.0</td>
</tr>
<tr>
<td>PHYS 378</td>
<td>Practicum in Secondary Education</td>
<td>1.0</td>
</tr>
<tr>
<td>SC ED 353</td>
<td>Multicultural Education for Secondary Education</td>
<td>3.0</td>
</tr>
<tr>
<td>SC ED 375</td>
<td>Adolescent Development and Classroom Management</td>
<td>3.0</td>
</tr>
</tbody>
</table>

**Note:** FBI fingerprint and background clearance must be completed prior to enrollment in Phy S 276.

#### OPTION 5.1
Complete 9 courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPSE 402</td>
<td>Educating Students with Disabilities in Secondary Class</td>
<td>2.0</td>
</tr>
<tr>
<td>IP&amp;T 371</td>
<td>Integrating K-12 Educational Technology 1</td>
<td>1.0</td>
</tr>
<tr>
<td>IP&amp;T 372</td>
<td>Integrating K-12 Educational Technology 2</td>
<td>1.0</td>
</tr>
<tr>
<td>PHYS 376</td>
<td>Exploration of Teaching</td>
<td>4.0</td>
</tr>
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<td>PHYS 377</td>
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#### OPTION 5.2
Complete 2.0 hours from the following course(s)

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 461</td>
<td>- (Phscs-Me En) Introduction to Acoustics</td>
<td>3.0</td>
</tr>
<tr>
<td>PHYS 471</td>
<td>- Principles of Optics</td>
<td>3.0</td>
</tr>
<tr>
<td>PHYS 492</td>
<td>- Capstone Project in Applied Physics</td>
<td>2.0</td>
</tr>
<tr>
<td>PHYS 497</td>
<td>- Research in Physics</td>
<td>3.0</td>
</tr>
<tr>
<td>PHYS 498</td>
<td>- Senior Thesis</td>
<td>3.0v</td>
</tr>
</tbody>
</table>

**Student teachers/interns must complete three forms in their LiveText accounts (PIBS, CDS, FED) and attach their TWS to the LiveText account for their program. All four must be completed to be cleared for graduation.**

### 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 they 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.

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.