BS in PHYSICS TEACHING (694828) MAP Sheet

Department of Physics and Astronomy

For students entering the degree program during the 2016–2017 curricular year.

This major is designed to prepare students to teach in public schools. In order to graduate with this major, students are required to complete Utah State Office of Education licensing requirements. To view these requirements go to http://education.byu.edu/ess/licensing.html or contact Education Student Services, 350 MCKB, (801) 422-3426.

UNIVERSITY CORE AND GRADUATION REQUIREMENTS

UNIVERSITY CORE REQUIREMENTS

Requirements	#Classes	Hours	Classes
Religion Cornerstones			
Teachings and Doctrine, Book of Mormon	1	2.0	Rel A 275
Jesus Christ & the Everlasting Gospel	1	2.0	Rel A 250
Foundations of the Restoration	1	2.0	Rel C 225
The Eternal Family	1	2.0	Rel C 200
The Individual and Society			
Citizenship			
American Heritage	1–2	3–6.0	from approved list
Global & Cultural Awareness	1	3.0	Sc Ed 353*
Skills			
Effective Communication			
First-Year Writing	1	3.0	from approved list
Adv Written & Oral Communication	1	3.0	Phscs 416 or Engl 316
Quantitative Reasoning	1	4.0	Math 112*
Languages of Learning (Math or Language)	1	4.0	Math 112*
Arts, Letters, and Sciences			
Civilization 1 and 2	2	6.0	from approved list
Arts	1	3.0	from approved list
Letters	1	3.0	Phil 423*
Scientific Principles & Reasoning			
Biological Science	1–2	3–5.0	from approved list
Physical Science	1	3.0	Phscs 222*
Social Science	1	3.0	from approved list
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

PROGRAM REQUIREMENTS (74.5-77.5 total hours, including licensure hours)

For students accepted into the major after August 1, 2014, grades below C in any required coursework in a teaching major or teaching minor will not be accepted. Teacher candidates must maintain a total GPA of 3.0 or higher throughout the program and to qualify for student teaching. For details on admission and retention requirements for teaching majors and teaching minors, see Educator Preparation Program (EPP) Requirements.

Contact the Education Student Services for entrance requirements into the licensure program.

A teaching minor is not required for licensure. However, it is strongly recommended.

Complete the following:

Phscs	121	Intro to Newtonian Mechanics	3.0
Phscs	123	Intro to Waves, Optics, & Thermodynamics	3.0
Phscs	127	Descriptive Astronomy	3.0
Phscs	140	Electronics Lab	1.0
Phscs	145	Experimental Methods in Physics	1.0
Phscs	191	Intro to Physics Careers & Research 1	0.5
Phscs	220	Intro to Electricity & Magnetism	3.0
Phscs	222*	Modern Physics	3.0
Phscs	240	Design, Fabrication, & Use of Scientific Apparatus	2.0

Note: Phscs 191 should be taken the first semester.

Complete the following:

Either:

Math	112*	Calculus 1	4.0
Math	113*	Calculus 2	4.0
Math	302	Mathematics for Engineering 1	4.0

Or:

Math	112*	Calculus 1	4.0
Math	113*	Calculus 2	4.0
Math	313	Elementary Linear Algebra	3.0
Math	314	Calculus of Several Variables	3.0

Complete one course from the following:

Math	303	Mathematics for Engineering 2	4.0
Math	334	Ordinary Differential Equations	3.0

Complete an additional 12 hours from the following:

a. Complete *up* to 6 hours from the following:

Hist	291	History of Science	3.0
Phil	423*	History & Philosophy of Science	3.0
Phscs	137	Severe & Hazardous Weather	3.0
Phscs	167	Descriptive Acoustics of Music & Speech	3.0
Phscs	281	Principles of Solid State Physics	3.0
Phscs	310	Physics By Inquiry: Mechanics	3.0
Phscs	311	Physics By Inquiry: Electricity	3.0
Phscs	313R	Special Topics in Physics	3.0V

b. Complete *at least* 6 hours from 300-, 400-, or 500-level or above physics courses, not including 310, 311, or 399R (Phscs 321, 461, and 471 are highly recommended).

Complete the teacher licensure requirements:

Contact Education Student Services, 350 MCKB, 422-3426, to schedule the **final interview** to clear your application for the secondary teaching license. You should be registered for your last semester at BYU prior to the scheduled appointment.

Complete the Professional Education Component:

A. Complete the following:

CPSE	402	Educating Students with Disabilities	2.0
IP&T	286	Instructional Technology in Teaching	1.0
Phy S	276	Exploration of Teaching	4.0
Phy S	377	Teaching Methods and Instruction	3.0
Phy S	378	Practicum in Secondary Education	1.0
Sc Ed	353*	Multicultural Education	2.0
Sc Ed	375	Adolescent Development & Classroom Management	3.0

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

B. Complete 12 hours of one of the following:

Phy S	476	Secondary Student-Teaching	12.0
Phy S	496	Academic Internship	12.0

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

FOR UNIVERSITY CORE OR PROGRAM QUESTIONS CONTACT THE ADVISEMENT CENTER
Physical and Mathematical Sciences College Advisement Center
N-181 ESC
Brigham Young University, Provo, UT 84602
Telephone: (801) 422-2674

FACULTY ADVISORS:
Duane Merrell
N-143 ESC
Brigham Young University, Provo, UT 84602
Telephone: (801) 422-2255

Licensure Advisor: Tara Goulding
350 MCKB
Brigham Young University, Provo, UT 84602
Telephone: (801) 422-7327

BS in PHYSICS TEACHING (694828)
2016–2017

Suggested Sequence of Courses:

FRESHMAN YEAR

1st Semester	
First-year Writing	3.0
or A Htg 100	(3.0)
Math 112 (FWSpSu)	4.0
Phscs 121 (FWSp)	3.0
Phscs 191 (F)	0.5
Religion Cornerstone course	2.0
General electives	1.5
Total Hours	**14.0**

2nd Semester	
A Htg 100	3.0
or First-year Writing	(3.0)
Math 113 (FWSpSu)	4.0
Phscs 123 (FWSp)	3.0
Phscs 140 (WSp)	1.0
Biological Science	3.0
Religion Cornerstone course	2.0
Total Hours	**16.0**

SOPHOMORE YEAR

3rd Semester	
Math 302 (FW)	4.0
Phy S 276 (FW)	4.0
Phscs 145 (FSu)	1.0
Phscs 220 (FWSu)	3.0
Religion Cornerstone course	2.0
Total Hours	**14.0**

4th Semester	
Math 303(FW)	4.0
Phscs 222 (FW)	3.0
Phscs 240 (FW)	2.0
Social Science	3.0
Religion Cornerstone course	2.0
General elective	2.0
Total Hours	**16.0**

JUNIOR YEAR

5th Semester	
Phscs Elective	3.0
IP&T 286 (FWSpSu)	1.0
Phscs 127 (FWSpSu)	3.0
Civilization 1	3.0
Engl 316	3.0
Religion Elective	2.0
General Elective	1.0
Total Hours	**16.0**

6th Semester	
Sc Ed 353 (FWSpSu)	2.0
Sc Ed 375 (FWSp)	3.0
Physics Elective	3.0
Physics Elective	3.0
Civilization 2 (and Arts)	3.0
Religion Elective	2.0
Total Hours	**16.0**

SENIOR YEAR

7th Semester	
Physics Elective	3.0
CPSE 402	2.0
Phy S 378 (FWSpSu)	1.0
Phy S 377 (FW)	3.0
Global and Cultural Awareness/Letters	3.0
Religion Elective	2.0
General Elective	2.0
Total Hours	**16.0**

8th Semester	
Sc Ed 476R or 496R (FW)	12.0
Total Hours	**12.0**

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 examples, 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 experience can provide excellent preparation for employment of 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 physics.byu.edu/undergraduate/careers.

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.

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