

BS in Applied Physics: Acoustics (694834) MAP Sheet

Physical and Mathematical Sciences, Physics and Astronomy

For students entering the degree program during the 2024-2025 curricular year

University Core and Graduation Requirements				Suggested Sequence of Courses			
University Core Requirements:				FRESHMAN YEAR		JUNIOR YEAR	
Requirements	# Classes	Hours	Classes	<u>1st Semester</u>		<u>5th Semester</u>	
Religion Cornerstones				PHSCS 121	3.00	PHSCS 245	2.00
Teachings and Doctrines of the Book of Mormon	1	2.00	REL A 275	UNIV 101	2.00	PHSCS 318	3.00
Jesus Christ and the Everlasting Gospel	1	2.00	REL A 250	PHSCS 191	0.50	PHSCS 321	3.00
Foundations of the Restoration	1	2.00	REL C 225	MATH 112	4.00	PHSCS 330	1.00
The Eternal Family	1	2.00	REL C 200	First Year Writing	3.00	GE Arts, Letters, Sciences	3.00
				Religion Cornerstone Class	2.00	GE Religion	2.00
				Total Hours:	14.50	Total Hours:	14.00
BYU Foundations for Student Success				<u>2nd Semester</u>		<u>6th Semester</u>	
Foundations for Student Success	1	2.00	UNIV 101	PHSCS 123	3.00	PHSCS 430	1.00
				MATH 113	4.00	PHSCS 461	3.00
The Individual and Society				CS 111	3.00	GE Arts, Letters, Sciences	3.00
American Heritage	1 to 2	3.00-6.00	from approved list	American Heritage	3.00	GE Arts, Letters, Sciences	3.00
Global and Cultural Awareness	1	3.00	from approved list	Religion Cornerstone Class	2.00	Global and Cultural Awareness	3.00
				Total Hours:	15.00	Acoustics Elective 1	3.00
						Total Hours:	16.00
Skills				SOPHOMORE YEAR			
First Year Writing	1	3.00	from approved list	<u>3rd Semester</u>		<u>7th Semester</u>	
Advanced Written and Oral Communications	1	3.00	PHSCS 416 or WRTG 316	PHSCS 220	3.00	PHSCS 441	3.00
Quantitative Reasoning	1	4.00	MATH 112*	PHSCS 225	2.00	PHSCS 561 (encouraged for Req 2)	3.00
Languages of Learning (Math of Language)	1	4.00	MATH 112*	PHSCS 230	1.00	Acoustics Elective 2	3.00
				PHSCS 291	0.50	GE Arts, Letters, Sciences	3.00
Arts, Letters and Sciences (Complete 6 of 7)				MATH 302	4.00	General Elective	1.00
Civilization 1	1	3.00	from approved list	GE Arts, Letters, Sciences	3.00	GE Religion	2.00
Civilization 2	1	3.00	from approved list	Religion Cornerstone Class	2.00	Total Hours:	15.00
Arts	1	3.00	from approved list			<u>8th Semester</u>	
Letters	1	3.00	from approved list	PHSCS 222	3.00	PHSCS 416 or WRTG 316	3.00
Biological Science	1	3.00-4.00	from approved list	PHSCS 240	2.00	GE Religion	2.00
Physical Science	2	3.00	PHSCS 222*	MATH 303	4.00	Acoustics Elective 3	3.00
Social Science	1	3.00	from approved list	General Elective	3.00	PHSCS 492R or 498R	2.00
				Religion Cornerstone Class	2.00	General Elective	3.00
				Total Hours:	14.00	General Elective	3.00
Core Enrichment: Electives						Total Hours:	16.00
Religion Electives	3 to 4	6.00	from approved list				
Open Electives	Variable	Variable	personal choice				
Graduation Requirements:							
Minimum residence hours required		30.00					
Minimum hours needed to graduate		120.00					
*These classes fill both university core and program requirements							

Program Requirements

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

Requirement 1 — Complete 18 Courses

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 111 - Program Design and Validation 3.0

MATH 113 - Calculus 2 4.0

PHSCS 121 - Intro to Newtonian Mechanics 3.0

PHSCS 123 - Intro to Waves, Optics, Thermodynamics 3.0

PHSCS 191 - Intro Phscs Careers & Rsrch 1 0.5

PHSCS 220 - Intro Electricity & Magnetism 3.0

PHSCS 222 - Modern Physics 3.0

PHSCS 225 - Intro to Experimental Physics 2.0

PHSCS 230 - Computational Physics Lab 1 1.0

PHSCS 240 - Dsgn, Fabricatn, Sci Apparatus 2.0

PHSCS 245 - Experiments in Contemp Phscs 2.0

PHSCS 291 - Intro Phscs Careers & Rsrch 2 0.5

PHSCS 318 - Intro Math 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 & Magnetism 3.0

PHSCS 461- Introduction to Acoustics 3.0

Requirement 2 — Complete 1 Course

PHSCS 442- Electrodynamics 3.0

PHSCS 471 - Principles of Optics 3.0

PHSCS 561- Fundamentals of Acoustics 3.0

Requirement 3 — Obtain confirmation from your advisement center that you have completed the following:

After gaining an acoustics advisor's approval of courses selected to define an option, complete an additional nine hours of acoustics-related electives (cannot include any courses already taken above). These nine hours must consist of a coherent set of upper-division courses with an identified acoustics-related educational goal. Six hours must be upper division (300-level or above); three hours must be 200-level or above.

Requirement 4 — Complete 1 of 2 Options

Option 4.1 — Complete 2 Courses

MATH 302 - Math for Engr 1 4.0

MATH 303 - Math for Engineering 2 4.0

Option 4.2 — 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 Equation 3.0

Requirement 5 — Complete 2 hours

Complete a capstone project or senior thesis including the following: A.

Choose a research mentor within the acoustics research group as early as possible. It is best to start as a freshman or sophomore. Interdisciplinary acoustics-related work in other departments or an acoustics-based internship is possible. B. Complete 2 hours of one of the following:

PHSCS 492R - Capstone in Applied Phscs - You may take up to 2.0 credit hours 0.5v

PHSCS 498R - Senior Thesis - You may take up to 2.0 credit hours 0.5v

CAREER OPPORTUNITIES:

The Applied Physics: Acoustics degree is an excellent degree for those who may continue study in acoustics as a scientist, engineer, or consultant after the BS working in national or government labs (Los Alamos, Sandia, NASA, Air Force Research Lab, Army Research Lab, Naval Undersea Warfare Center), government contractors (Raytheon, Lockheed Martin, Northrop Grumman, Penn State Applied Research Lab, Univ. of Texas Applied Research Labs), acoustical product companies (Amazon, Apple, Bose, JBL, Meta, Motorola), acoustical consulting (The Church of Jesus Christ of Latter-day Saints, MD Acoustics, Spectrum Engineers), or companies concerned with noise or vibration (Caterpillar, Ford). Interestingly, the places listed in parentheses are locations where graduates from BYU in acoustics have gone to work. Those who graduate may go to work right after their BS or they may go on to graduate school.

THE DISCIPLINE:

Acoustics is defined as the science that deals with the production, control, transmission, reception, and effects of sound (as defined by Merriam-Webster). While acoustics does include the study of musical instruments and architectural spaces, it also covers a vast range of topics, including: noise control, SONAR for submarine navigation, ultrasounds for medical imaging, thermoacoustic refrigeration, seismology, bioacoustics, and electroacoustic communication.

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

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ADVISEMENT CENTER INFORMATION

Computational, Mathematical and Physical Sciences College

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