

APPLICATIONS OF ACOUSTICS MINOR

Description

Acoustics is the branch of physics concerned with the properties of sound. Sound is a sensory mode that shapes our everyday lives. It provides a sense of geographical, perceptual and emotional sense of place. The science of acoustics spreads across many facets of human society—music, medicine, architecture, industrial production, warfare and environment. Applied uses of acoustics are playing an important role in addressing many of the societal challenges our nation faces. Acoustics has proven to be a valuable tool for monitoring and assessing impacts related to national security concerns, food security, energy, environment, and health. Acoustics is the only practical underwater sensing modality, and on land and in air, has become directly linked to a variety of applications in environmental acoustics. The Applications of Acoustics Minor will provide a recognized mastery of fundamental acoustics concepts to enhance traditional degrees that employers are looking for in this growing field of applied acoustics.

Requirements

Academic policies related to Minors.

- A minor in Applications of Acoustics is designed to provide a flexible and broad selection of courses to complement any other major area of study.
- A minimum of five 3-4 credit courses (minimum 18 credits) is required to complete the minor.
- A minimum grade of C- is required for all minor courses.

Code	Title	Credits
Required Courses		
<i>Knowledge Tier</i>		
Select one course from the following:		4
BIOL 412	Introductory Biology: Evolution, Biodiversity and Ecology	
ECE 401	Perspectives in Electrical and Computer Engineering	
LING 405	Introduction to Linguistics	
NR 433	Wildlife Ecology	
OE 490	Introduction to Ocean Engineering	
PHYS 408	General Physics II	
<i>Quantitative Tier</i>		
Select one course from the following:		4
BIOL 633	Data Analysis for Life Science	
BIOL 706	Data Science with R for the Life Sciences	
CS 419	Computer Science for Engineers and Scientists	
IAM 550	Introduction to Engineering Computing	
MEFB 633	Quantitative Reasoning and Analysis for Marine Sciences	
NR 713	Quantitative Ecology	
RMP 724	Research, Evaluation, and Data-Driven Decisions	
<i>Electives Tier</i>		
Select three courses from the following:		10-12
COMM 504	Basic Audiology	
COMM 521	Anatomy and Physiology of the Speech and Hearing Mechanisms	
COMM 524	Clinical Phonetics	
COMM 636	Speech and Hearing Science	
ECE 714	Introduction to Digital Signal Processing	
MEFB 545	Field Bioacoustics and Soundscape Ecology	
MUSI 471	Theory I	
or MUSI 472	Theory I	

MUSI 571	Theory II
or MUSI 572	Theory II
NSB 727	Animal Communication
OE 765	Underwater Acoustics
OE 774	Integrated Seabed Mapping Systems
OE 795	Special Topics (Acoustic Essentials)
ZOOL 740	Acoustic Ecology
Up to 4 credits of Independent Study (795) for acoustic-related work, requires pre-approval from minor coordinator	
Total Credits	18-20

Student Learning Outcomes

Program Learning Outcomes

- Students apply quantitative skills to acoustic problems within their discipline.
- Students demonstrate that they understand fundamental acoustics concepts, including sound measurement, sound propagation, and sound perception, and apply this knowledge to the diverse applications of acoustics.
- Students apply acoustic principles in their respective fields to address discipline-specific, real-world challenges involving sound, noise, and vibration, facilitating problem-solving across multiple disciplines.
- Students develop the ability to communicate acoustics concepts effectively across interdisciplinary groups and to diverse audiences.