

Pursuing the M.Eng. in Acoustics through Distance Education from Penn State

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Acoustics Education at a Distance

The Graduate Program in Acoustics at Penn State is the only graduate program in the U.S. through which it is possible for students at a distance to earn the M.Eng. in Acoustics degree entirely online.

Since 1987, more than 120 students have received the M.Eng. in Acoustics degree.

Each semester, 80-100 distance education students take Acoustics courses from Penn State.



Distance student Jackie Wu (Boeing) attended graduation ceremonies at Penn State after completing the M.Eng. in Acoustics in 2014.

Courses Toward the M.Eng. in Acoustics Degree

Penn State's Graduate Program in Acoustics offers more than 20 graduate courses covering a wide variety of acoustics topics.

The M.Eng. Degree in Acoustics requires 30 course credits and a capstone paper. 18 credits come from core required courses:

Required Acoustics Courses

- ACS 501, Elements of Acoustics and Vibration
- ACS 502, Elements of Sound Waves in Fluids
- ACS 513, Digital Signal Processing
- ACS 514, Electroacoustic Transducers
- ACS 515, Acoustics in Fluid Media
- ACS 516, Acoustical Measurements and Data Analysis



We teach most of our courses to a blended audience of both resident and distance students. This ensures that the content, expectations, and difficulty level are the same for both groups.

The remaining 12 credits are fulfilled by choosing four courses from our large selection of electives:

Elective Acoustics Courses

- ACS 519, Sound and Structure Interaction
- ACS 521, Stress Waves in Solids
- ACS 530, Flow Induced Noise
- ACS 537, Noise Control Engineering
- ACS 597, Computational Acoustics
- ACS 597, Nonlinear Acoustics
- ACS 597, Ocean Acoustics
- ACS 597, Outdoor Sound Propagation
- ACS 597, Marine Bioacoustics
- ACS 597, Acoustics of Musical Instruments
- ACS 597, Spatial Sound and 3D Audio
- ACS 597, Multi Domain Modeling
- ACS 598, Engineering Mathematics
- AERSP 511, Aerodynamic Noise
- A E 458, Architectural Acoustics and Noise Control

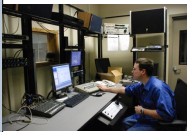
Taking a Graduate Acoustics Course Online

We teach almost all of our graduate level acoustics lecture courses to students in a classroom while simultaneously live-streaming (and recording) our lecture content over the internet using Adobe Connect meeting software. Students taking our courses at a distance see exactly the same material (lectures, demonstrations, animations, discussions, software, etc.) as the resident students who are sitting in the classroom.

All that is needed to take our courses online is a computer with a broadband internet connection.

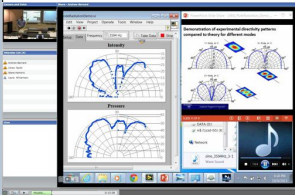
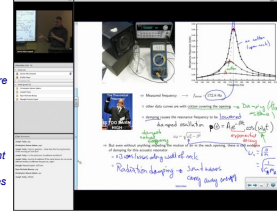


Broadcasting our courses while we are teaching to resident students helps Distance Students feel like they are a part of the class.



Student producers in our production studio record the lectures, run the camera and audio feeds and make sure our distance students receive the best experience possible.

Distance Education students see the output of the SMART board showing the lecture notes, a video window showing the professor, the names of DE students who are watching the live broadcast, and a chat window for DE students to ask and answer questions and interact with faculty and resident students during the live lecture. At right is a screen shot from one of Dr. Russell's ACS 502 lectures from Fall 2014.



Screen shot of a recorded lecture in ACS 519, Sound and Structure Interaction, from Fall 2013, with a demonstration of sound intensity radiated from a driven plate.

Course content (lecture notes, homework, etc.) are distributed through the ANGEL course software system. Distance students submit homework electronically.

Acoustics: Anywhere, Anytime

Archived recordings may be accessed remotely at any time from anywhere a broadband internet connection is available. Distance Education students can take graduate level courses in acoustics from one of the best acoustics programs in the world, without having to leave a job and relocate to Penn State.



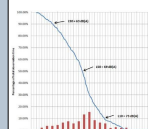
Currently enrolled distance education students are scattered across the United States, Canada, Europe and Asia.

Taking Courses as a Non-Degree Student

You don't have to apply or be admitted as a degree student in order to take graduate level acoustics courses from Penn State. Distance Education students can take up to five courses without having to apply for admission to the M.Eng. degree. Many students who end up earning the M.Eng. degree start by taking one or two courses as a non-degree student first.



Tuition costs for distance education courses in acoustics are the same as in-state resident tuition.



A Distance Education student collects traffic noise L_{eq} data for his ACS 537 Engineering Noise Control class project



Captstone Paper

The M.Eng. In Acoustics degree does not require a thesis, but students are required to write a scholarly paper on a topic of their choosing, which involves topics learned from the acoustics courses taken. One of our acoustics faculty will provide advice and act as a reader for each paper.

Examples of recent M.Eng. paper topics:

- Review of Radiated Noise Criteria for Fisheries Research Vessels
- An Overview of Rotorcraft Blade Vortex Interaction (BVI) Noise
- The Effects of Meteorology on the Effectiveness of Noise Barriers
- Vehicle Interior Noise Simulation: The Future State of Noise and Vibration Prototyping
- The Impact of Subsonic Twin Jets on Airport Noise
- Two Applications of Sound Intensity for Industrial Noise Control Engineering
- Fundamentals of Guitar Acoustics
- Computer Modeling for Acoustics with Case Study
- Validation of FEA Damped Model and Optimization on Damping Part Geometry
- Comparison of US Government Roadway Traffic Noise Projection Techniques
- Measuring Voice Coil Fatigue in Micro Loudspeakers
- A System to Record Courtship Songs of the Fruit Fly

Requirements

In order to enroll in acoustics graduate courses at Penn State, students must have a bachelor's degree. The bachelor's degree does not have to be in an engineering, physics or math field. However, students must have sufficient background in undergraduate mathematics (Calculus, 1,2,3, and Differential Equations) and physics (Newtonian Mechanics, Electricity & Magnetism, and Waves) in order to succeed in advanced acoustics courses at the graduate level.

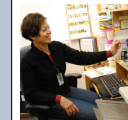


For More Information . . .

<http://www.acs.psu.edu/DistanceEducation>

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Phone: +1 (814) 863-6078



Kris Popovich is our front line of contact, helping students enroll in courses, tracking their progress, answering questions, and taking care of all paperwork and logistics.

Dr. Dan Russell advises students regarding course selection and capstone paper topics, and oversees the distance education program.

