

Student Handbook

Graduate Program in Acoustics

Pennsylvania State University



2025-2026



August 22, 2025

Dear Acoustics Students,

It is a great pleasure to welcome you to the Graduate Program in Acoustics! The Graduate Program in Acoustics is 60 years old, beginning in 1965. Since that time, we have had more than 900 graduates earning master's and doctoral degrees in Acoustics. This handbook summarizes the Graduate Program in Acoustics policies and procedures that you need to follow to attain your degree – allowing you to join our list of accomplished alumni. Inside you will find general information about the program, our faculty, our facilities, and our courses. Individual chapters provide requirements, policies, and guidelines for the specific M.Eng., M.S., or Ph.D. degree you will be pursuing. The final chapter includes general policies and information for graduate students at Penn State.

Please note that your handbook applies directly to your cohort pictured on the front page. Previous or later versions of the handbook may differ in policy and/or procedure. The Acoustics Program office will communicate when you have the option to either follow policies and procedures from this handbook or choose to follow a newly adopted policy and/or procedure. Please be aware that adopting a new policy and/or procedure would be completely at your discretion as you are only required to follow the policies and/or procedures that were in place at the time you matriculated into the program.

In addition to this handbook, you should be aware of three other resources. First and foremost, your academic faculty advisor will help you. One of your advisor's primary roles is to support you throughout your time at Penn State. Secondly, the Acoustics Program office will be pleased to answer questions, particularly if there are questions about the policies contained within this handbook and information you may receive from other sources. Thirdly, you may also need to refer to online resources such as the Acoustics Program web page (www.acs.psu.edu) and other resources and policies available from the website for the J. Jeffrey and Ann Marie Fox Graduate School (www.gradschool.psu.edu).

I am also a resource, so please feel free to come to me with questions or concerns.

Welcome to the Acoustics Program!

Julianna C. Simon, Ph.D.
Interim Director and James F. Will Associate Professor



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About the Graduate Program in Acoustics

The Graduate Program in Acoustics at Penn State (www.acs.psu.edu) is a unique interdisciplinary program that offers a broad educational background applicable to a variety of scientific and technological fields, providing lifelong flexibility for continued professional growth.

Our course selection includes a wide array of courses covering topics in fundamental theoretical acoustics, physical acoustics, underwater acoustics, signal processing and analysis, electroacoustic transducers, biomedical ultrasonics, aeroacoustics, flow noise, structural vibration, computational acoustics, nonlinear acoustics, noise control engineering, outdoor sound propagation, architectural acoustics, psychoacoustics, musical instruments, and more.

Our faculty hail from a broad range of acoustics related sub-fields combining many related disciplines, and they conduct research in areas including:

Acoustic Metamaterials	Fluid-Structure Interaction	Physiological Acoustics
Acoustical Oceanography	Gear System Noise	Seafloor Acoustics
Acoustic Remote Sensing	Infrasound	Seismic Surveillance
Active Control	Machine Condition Monitoring	Signal Processing
Adaptive Signal Processing	Musical Acoustics	Sonar Engineering
Aero-acoustics	Noise Control	Sonic Booms
Architectural Acoustics	Nondestructive Evaluation	Modal Analysis
Atmospheric Acoustics	Nonlinear Acoustics	Musical Acoustics
Biomedical Ultrasound	Numerical Modeling	Structural Acoustics
Education in Acoustics	Ocean Acoustics	Structural Health Monitoring
Electroacoustic Transducers	Outdoor Sound Propagation	Ultrasonic Imaging
Energy Harvesting	Physical Acoustics	Underwater Acoustics
Flow Induced Noise	Psychological Acoustics	Vibration Control

Since 1965, the Graduate Program in Acoustics has been offering several options leading to graduate degrees in acoustics. Penn State is the only school in the U.S. that currently offers the Ph.D. in Acoustics. As of August 2025, we have awarded:

- 304** M.Eng. in Acoustics (289 through distance education)
- 342** M.S. in Acoustics
- 256** Ph.D. in Acoustics

The Graduate Program in Acoustics at Penn State routinely receives far more job posting announcements than we have students graduating to fill those job postings. Most students receive multiple job offers upon graduation. **Companies where our graduates currently work** include: *Apple, Bose, Boeing, NASA, General Dynamics Electric Boat, Naval Undersea Warfare Center, Shure, Knowles Electronics, Harmon, BBN, Raytheon, Motorola, Lockheed Martin, Sandia National Laboratory, Northrup Grumman* as well as several government laboratories and a large number of acoustical consulting firms.

We also have several Ph.D. graduates who hold academic positions at *Brigham Young University, Georgia Institute of Technology, University of Texas-Austin, University of Nebraska, Central Washington University, Michigan Technological University, University of Hartford, Purdue University, Rollins College, Southern Polytechnic University, SUNY Maritime College*.

Several of our graduates hold prominent positions of leadership within professional societies such as the Acoustical Society of America (ASA) and the Institute for Noise Control Engineering (INCE).

For information about the history of the Acoustics Program and its impact on the acoustics community, check out:

- Video celebrating our 50th Anniversary: <https://www.youtube.com/watch?v=4oPCjHDwhTA>
- Article about the History of the Graduate Program in Acoustics published in *Acoustics Today*: <https://acousticstoday.org/wp-content/uploads/2015/11/Penn-State.pdf>

Section 1

Overview of the Graduate Program in Acoustics

- Our Corner of Campus
- Acoustics Faculty and Staff
 - Core Acoustics Faculty
 - Acoustics Program Staff
 - ARL Research Faculty
 - Acoustics Faculty from Other Departments
- Laboratory and Research Facilities
- Professional Societies and Clubs
- Acoustics Program Social Events

Engineering Collaborative Research & Education Building (ECoRE)

The Graduate Program in Acoustics occupies spaces on several floors of the ECoRE building. Faculty and staff offices as well as the classroom are on the 4th floor. Research labs are on the basement and 3rd floor. Grad student offices are on the 3rd floor.

ECoRE 4th Floor – Faculty & Staff Offices

Faculty and Staff Offices (marked in Blue on the map below):

- **411** – Dr. Victor Sparrow, United Technologies Corporation Professor of Acoustics
- **412** – Dr. Michelle Vigeant-Haas – Associate Professor of Acoustics and Architectural Engineering
- **413** – Postdoctoral Student Office
- **414** – Melissa Wandrisco – Student Coordinator and Program Administrative Staff
- **415** – Lydia Olsen & Amber Schraff – Acoustics Program Staff
- **416** – Dr. Julianna Simon – Interim Director, James F. Will Associate Professor of Acoustics and Biomedical Engineering
- **417** – Dr. Yun Jing – Professor of Acoustics
- **418** – Dr. Dan Russell – Teaching Professor of Acoustics and Distance Education Coordinator
- **433** – Paul S. Veneklasen Research Foundation **Hybrid Acoustics Classroom**



ECoRE 3rd Floor – Research Labs and Student Desks

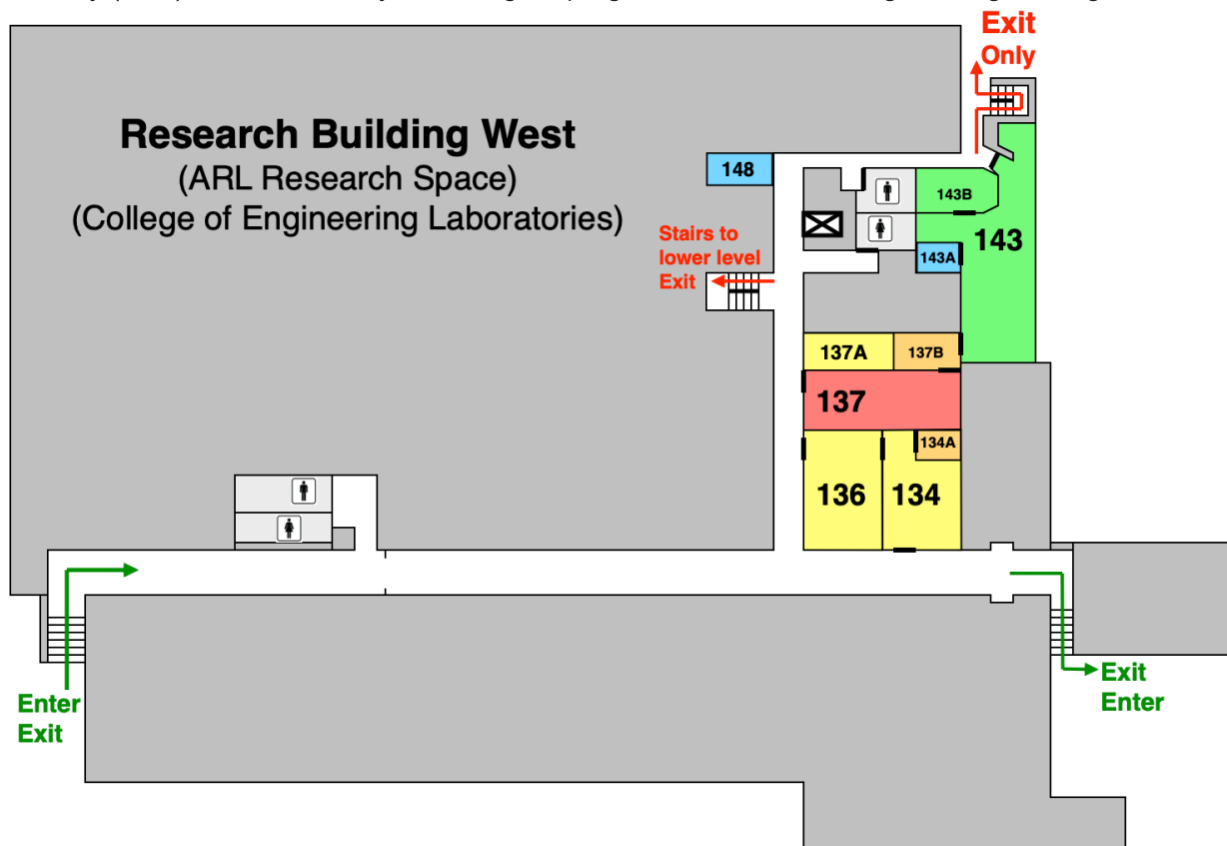
- **322** - Student kitchen space
- **323** – Graduate student desk area
- **324-325** – BASiL – Biomedical Acoustics Simon Lab – Research Lab Space for biomedical ultrasound research for Dr. Simon and her graduate students.

ECoRE Basement – Research Labs Spaces

- **12** – **Anechoic Chamber and Reverberation Chamber Suite.** Also the home of the Sound Perception and Room Acoustics Laboratory (SPRAL) listening room.
- **13** – **Center for Acoustics and Vibration (CAV) Laboratory.**

Research Building West

The Graduate Program in Acoustics has faculty offices and research laboratory space on the 1st floor of Research Building West. Most of the rest of this building is occupied by laboratories for Applied Research Laboratory (ARL) research and by other degree programs within the College of Engineering.



Faculty Offices:

- **143A** – Dr. Stephen Thompson, Emeritus Professor of Acoustics

Faculty Research Laboratories and Graduate Student Spaces:

- **134** – **Sound Innovation of Metamaterials & Biomedical Acoustics (SIMBA) Lab** – Dr. Jing's Research Group
- **137** – **Acoustics Teaching Laboratory** – used for ACS Lab Classes and student projects
- **137A** – *The Batcave* – Dr. Russell's Research Space
- **137B** – *the Speaker Corner* – Emeritus Professor, Dr. Thompson's Research Space
- **143** – Acoustics Graduate Student Desk Carrels
- **143B** – Acoustics Program Conference Room

Section 2

Acoustics Courses



- Overview of Acoustics Courses
- Acoustics Course Descriptions
 - Required ACS Courses
 - Elective ACS Courses
 - Specialty Courses
- Related Courses from Other Departments

Overview of Acoustics Courses

The following courses are offered directly through the Graduate Program in Acoustics and are usually taught from the Acoustics Classroom (**433 ECoRE**) so we can broadcast a livestream of the course to our distance education students. Required courses are generally offered every year (Fall or Spring); elective courses are offered on a rotating basis, usually every 2-3 years.

ACS 501, Elements of Acoustics and Vibration
 ACS 502, Elements of Waves in Fluids
 ACS 503, Signal Analysis for Acoustics and Vibration
 ACS 505, Experimental Techniques in Acoustics
 ACS 509, Research Communications in Acoustics
 ACS 514, Electroacoustic Transducers
 ACS 515, Acoustics in Fluid Media
 ACS 519, Sound-Structure Interaction
 ACS 521, Stress Waves in Solids
 ACS 523, Signal Analysis in Acoustics and Vibration II
 ACS 524, Transducers II and Acoustics System Modeling
 ACS 530, Flow-Induced Noise
 ACS 533, Outdoor Sound Propagation
 ACS 537, Noise Control Engineering I
 ACS 540, Nonlinear Acoustics in Fluids
 ACS 542, Physical Principles in Biomedical Ultrasonics
 ACS 544, Computational Acoustics
 ACS 547, Noise Control Applications
 ACS 549, Acoustics Functional Materials
 ACS 551, Spatial Sound and 3D Audio
 ACS 552, Architectural Acoustics Theory and Applications
 ACS 553, Signal Analysis for Audio Applications
 ACS 555, Applications of Aeroacoustics and Vibroacoustics (Acoustics of Musical Instruments)
 ACS 560, Ocean Acoustics
 ACS 590, Colloquium
 ACS 600, Thesis Research- Full-time M.S. and Ph.D. (pre-Comprehensive Exam)
 ACS 601, Dissertation-Full-time Ph.D. (post-Comprehensive Exam)
 ACS 610, Thesis Research- for students conducting off-campus research
 ACS 611, Dissertation-Part-time Ph.D. students (post-Comprehensive Exam)

Descriptions of Acoustics Courses

ACS 501, Elements of Acoustics and Vibration

This course introduces the fundamentals of acoustics and vibration, focusing on structural vibration and sound waves in simple objects such as mass-spring systems, strings, rods, and plates. The fundamental concepts of vibration are presented along with applications to engineering and industrial problems. Topics covered: simple harmonic oscillator; mechanical resonance and damping; forced vibration and normal modes; transverse waves on strings; boundary conditions and standing waves; elasticity; longitudinal, torsional, and transverse vibration of bars; transverse vibrations of membranes; and flexural vibrations of thin plates.

ACS 502, Elements of Waves in Fluids

This course lays the fundamental groundwork for the propagation of acoustic waves in fluids. Topics include: basic equations of fluid dynamics, acoustic lumped elements, speed of sound, linear acoustic wave propagation, plane and spherical waves, radiation of sound from sources and arrays, sound intensity and power, reflection and transmission of sound at boundaries, absorption of sound, normal modes in rooms, propagation of sound in pipes and acoustic filters.

ACS 503, Signal Analysis for Acoustics and Vibration

Time- and frequency-domain analyses for sampled discrete-time acoustic and vibration measurements. Development, application, and consequences of filtering, spectral analysis, and correlation for single- and multi-channel data.

ACS 505, Experimental Techniques in Acoustics (Resident Only-2 credits)

This hands-on laboratory course covers the calibration, uses, and applications of acoustical and vibrational transducers, familiarizes students with electronic and other instrumentation used in fundamental data measurement, and provides students to develop skills with data acquisition and analysis.

ACS 509, Research Communication in Acoustics (Resident Only)

This course on research communication is intended for all students interested in pursuing careers in academia or industry. Students will get the opportunity to practice and receive feedback on selecting and critically reading journal publications; writing grants (including serving on mock grant review panels); writing technical papers; presenting to technical audiences to persuade or inform; and designing and implementing community outreach activities.

ACS 514, Electroacoustic Transducers

This course covers derivation and discussion of the fundamental operating characteristics of transducers for acoustics and for vibration. Acoustic transducers will include microphones, loudspeakers, and underwater hydrophones and projectors. Student must have a working knowledge of MATLAB prior to taking this course.

ACS 515, Acoustics in Fluid Media

This course covers sources of sound; superposition of simple sources, free space Green's functions, dipoles and quadrupoles, multipole expansion, radiation of sound, Kirchhoff-Helmholtz integral theorem, Rayleigh integral, radiation from cylinders and spheres, scattering from cylinders and spheres, diffraction, sound sources in ducts, cavities, and rooms, and a very brief introduction to acoustic finite elements and acoustic boundary elements.

ACS 519, Sound-Structure Interaction

Topics covered: structural vibrations of beams, plates, and cylindrical shells; structural damping; coupling of structural vibrations with acoustic pressure fields; analytical and numerical techniques (finite element and boundary element methods) for solving structural-acoustic problems; statistical energy analysis; transmission loss of plates; survey of practical applications for aerospace, automotive, and naval structural-acoustic systems.

ACS 521, Stress Waves in Solids

This course will cover recent advances in ultrasonic nondestructive evaluation; the propagation of elastic stress waves in solids; reflection and refraction of waves; horizontal shear; multilayer structures; viscoelastic media; testing principles.

ACS 523, Signal Analysis in Acoustics and Vibration II

This course is concerned with the time and frequency-domain analysis of discrete-time signals and discrete-time linear systems, with an emphasis on developing and applying analysis techniques with applications in acoustics and vibrations. Topics covered include: a review of time and frequency-domain representations of systems; the analysis and design of IIR and FIR digital filters; time-frequency analysis; signal detection and classification; and

signal modulation. Possible application topics include vibration and modal analysis, machinery and structural health and condition monitoring, source localization and classification, and outdoor sound propagation.

ACS 524, Transducers II and Acoustics System Modeling

Topics for this course include: condenser, electret, piezoelectric, moving coil, and balanced armature transducers; and the interaction of closely spaced transducers. Computational modeling for transducers and systems will use the method of dynamic system modeling with Simscape (which is included in the PSU student license for the MathWorks product line). This course will include a significant emphasis on modeling of magnetic circuits and devices and will cover methods of modeling the nonlinearities that are present in most actual transducer devices.

ACS 530, Flow- Induced Noise

The objective of this course is to provide the basic and applied aspects of noise created by subsonic fluid flows including prediction and reduction techniques. The concepts of noise and non-radiating pressure fluctuations created by unsteady flows are discussed from both a theoretical and experimental perspective. For a given class of flow, mechanisms for the creation of unsteady wall pressures, forces and sound, radiated directly and re-radiated by the vibration of the structure, are presented. The course will place a heavy emphasis on real world applications with material discussing both current research thrusts and past work in the field including the review and discussion of relevant journal articles.

ACS 533, Outdoor Sound Propagation

This course will cover a variety of outdoor sound scenarios, but a majority will focus on propagation near the ground. Topics include: effects of realistic ground surfaces; temperature gradients; atmospheric turbulence; propagation over barriers and terrain, and computational methods for outdoor sound.

ACS 537, Noise Control Engineering

Topics covered: source-path-receiver model, human hearing and psychoacoustics, human response to noise and vibration, sound quality metrics and criteria for quantifying noise, acoustic standards related to noise and vibration control, instrumentation for measuring and analyzing noise and vibration, noise sources (distributed sources, impact sources, flow noise), absorption (materials, measurement, placement), control of sound in large and small rooms, partitions and barriers, mufflers, and vibration control techniques.

ACS 540, Nonlinear Acoustics in Fluids

The topics covered for this are: review of thermoviscous linear sound; nonlinear equations of acoustics; steepening/harmonic generation; weak shocks/N-waves; Burgers' equation; sonic booms; acoustic saturation; radiation pressure; acoustic levitation; nonlinear reflections and standing waves; biomedical harmonic imaging; streaming; cavitation and sonoluminescence; parametric arrays and the "audio spotlight"; scattering of sound by sound; and computational nonlinear acoustics.

ACS 542, Physical Principles in Biomedical Ultrasonics

This course focuses on the phenomenon of ultrasound in the context of medical and biological applications, systematically discussing physical principles and concepts. Concepts of wave acoustics are examined, and practical implications are explored - first, the generation and nature of acoustic fields and then their formal descriptions and measurement. Real tissues attenuate and scatter ultrasound in ways that have interesting relationships to their physical chemistry, and the course includes coverage of these topics. This course also includes critical accounts and discussions of the wide variety of diagnostic and investigative applications of ultrasound that are available in medicine and biology. The course encompasses the biophysics of ultrasound and its practical applications to therapeutic and surgical objectives. The course utilizes finite element methods for simulation.

ACS 544, Computational Acoustics

This course provides a background to the field of computational acoustics with exposure to several important computational tools including symbolic mathematics software (like Mathematica), finite differences, finite elements, boundary elements, scientific visualization, sound propagation algorithms. When possible, emphasis will be placed on commercially available software for solving noise and vibration problems. Guidelines are given for choosing the right numerical approach, generating meshes, and solving problems in areas such as product noise, audio and telephony, structural acoustics, and automobile and aircraft interior noise. Time domain, frequency domain, and fluid-structure interaction problems are all addressed.

ACS 547, Noise Control Applications

This course focuses on applications in noise control engineering. The course is split into two main overlapping themes: advanced measurement methods and machinery noise control. The advanced measurement methods will cover topics such as sound intensity, sound power, sound quality, impedance and transmission loss tubes, and coherent output power. The machinery noise control topics include noise generation and control from systems such as gears, pulley, fans, HVAC systems, muffler systems and rotating machinery.

ACS 549, Acoustics Functional Materials

This course introduces the latest developments in the emerging field of acoustics functional materials. Students will gain understanding of the fundamental physics governing the interaction between mechanical waves and engineered materials, such as phononic crystals, acoustics metamaterials and metasurfaces. Students will be exposed to the various novel mechanical wave behaviors (e.g. negative refraction) and their applications (cloaking). Students will also learn how to use analytical (e.g. coupled-mode theory) or numerical methods (e.g. finite element method) to model acoustic functional materials. Specific topics include: fundamentals of acoustic waves, acoustics waves in periodic media, wave phenomena and applications of phononic crystals, acoustic metamaterials and metasurfaces, topological acoustics, and non-Hermitian acoustics.

ACS 551, Spatial Sound and 3D Audio

This course is an overview of recent developments in virtual acoustics (also known as 3-D sound, 3-D audio, binaural audio, or spatialized sound). The course pulls from many subdisciplines of acoustics including psychoacoustics, physical acoustics, signal processing, active acoustic control, architectural acoustics, audio engineering and computational acoustics. Topics to be covered include: Head related transfer functions (HRTFs); elements of psychoacoustics for 3-D sound; the "stereo dipole"; auralization (including reverberation effects); virtual acoustic systems; cross talk cancellation; ambisonics; wave field synthesis; multi-channel audio; virtual reality modeling language (VRML) and applications.

ACS 552, Architectural Acoustics Theory and Applications

This 3-credit graduate course will cover underlying theory and commonly used research methods in architectural acoustics. The theory topics will include reflections from infinite surfaces and finite objects, absorption mechanisms, and psychoacoustics concepts specific to architectural acoustics. The research methods that will be discussed include room acoustics impulse response measurements, modeling of room acoustics using commercially- available software, and experimental design of subjective listening tests. A set of recently published research articles related to these topics will also be examined in detail.

ACS 553, Signal Analysis for Audio Applications

This course will present the essential signal processing and acoustical modeling associated with audio systems used in broadcasting, communications, music recording, and video foley production. Topics covered: details of digital waveform compression processes and formats; digital signal processing for audio filters, noise cancellation, modulation, filters, compressors, harmonizers, and reverberation special effects; digital audio workstations; the history and types of microphones and guitar pickups; amplifier design types, including digital, transistor, and vacuum tube amplifier designs, enhancing signal-to-noise ratio, and loudspeaker system design including measurements and cross-over design for vented and sealed cabinets. This course will prepare students for working in the audio industry by supporting practical applications of acoustics theory to audio-related applications.

ACS 555, Applications of Aeroacoustics and Vibroacoustics (Acoustics of Musical Instruments)

This course will provide an in-depth exploration of the physics and acoustics of classical musical instruments. Topics will focus on the mechanisms of sound production by stringed instruments (plucked, struck and bowed), percussion (drums, marimba) brass winds (lip reed, cylindrical bore, conical bore), woodwinds (flutes, single-reed, double reed). Related topics will include radiation properties, damping mechanisms, impedance measurements, and the coupling between acoustics and structural components. As time allows ethnic variations on classical instruments may be discussed. An understanding of the fundamentals of acoustics and vibration will be assumed as prerequisite for this course.

ACS 560, Ocean Acoustics

This course covers a broad, but comprehensive, introduction to many important topics in underwater acoustics. The major goal is to give participants a practical understanding of fundamental concepts, along with an appreciation of current research and development activities. It serves as a foundation for more advanced study of current literature or for other specialized courses. Topics covered: ocean dynamics: e.g., derivation of the Navier-Stokes equation; derivation and solution of the wave equation: Green's functions, wavenumber integration, normal

modes, PE, ray theory, energy flux; boundary reflection: layered fluid and elastic media, plane and spherical wave reflection; and boundary and volume scattering.

ACS 590, Colloquium (Resident Only)

This one credit course prepares students to be able to make effective presentations about a research topic at scientific conferences.

ACS 600, Thesis Research-Full-time M.S. and Ph.D. (pre-Comprehensive Exam)

This course should be used to register for M.S. and Ph.D. thesis research. Instructors usually award a grade of R (for research, which assumes adequate effort) for this course, but may award a grade of A, B, C, D, or F for up to 6 credits for M.S. students and 12 credits for Ph.D. students. An R need not be changed later to a quality grade. A quality grade must be reported no later than the end of the following semester.

ACS 601, Dissertation- Full-time Ph.D. (post-Comprehensive Exam)

ONLY Ph.D. STUDENTS CAN REGISTER FOR ACS 601 AND ONLY AFTER THEY HAVE PASSED THEIR COMPREHENSIVE EXAM AND MET THE TWO-SEMESTER RESIDENCY REQUIREMENT. Ph.D. students may register for one additional course when they register for ACS 601. If this course is for credit (not simply a course audit), an additional fee is required. Prior to graduation, the Graduate School reviews students' transcripts. Students registering for ACS 601 when they have not satisfied the above requirements will be asked to retroactively change their registration, pay retroactive fees and possible additional course-credit costs before they will be permitted to graduate. It is vital that graduate students consult their advisors prior to each semester's registration to ensure they are registering for the correct course.

ACS 610, Thesis Research-for students conducting off-campus research

ACS 611, Dissertation-Part-time Ph.D. students (post-Comprehensive Exam)

Section 3

Master's Degrees in Acoustics



- M.Eng. (resident)
- M.S. (research thesis)

Master of Engineering (M.Eng. – Resident)

The Master of Engineering degree is a professional master's degree which is solely based on graduate course work. Most students who pursue the M.Eng. degree in the Graduate Program in Acoustics are distance education students who take classes online through World Campus. However, the M.Eng. degree may be earned by resident students. **This chapter in the student handbook addresses the M.Eng. degree for resident students who are in-person at the University Park campus. The description of the M.Eng. degree for Distance Education students will be provided in a separate document.** M.Eng. students are not eligible for funding through a research assistantship.

Advisors for M.Eng. students

The Acoustics Program Director is the default academic advisor for all resident students pursuing the M.Eng. degree.

M.Eng. Course Credit Requirements

The M.Eng. degree requires 30 credits of graduate level coursework. All resident Acoustics M.Eng. students are required to complete 18 credits of required core courses

- ACS 501, Elements of Acoustics and Vibration
- ACS 502, Elements of Sound Waves in Fluids
- ACS 503, Signal Analysis for Acoustics and Vibration
- ACS 514, Electroacoustic Transducers
- ACS 515, Acoustics in Fluid Media
- ACS 894 M.Eng Capstone

The remaining 12 credits may be completed by taking elective courses offered by the Acoustics Program or approved courses taught by other departments at Penn State University. No research credits (ACS 600) may be counted toward the 30 required course credits. A minimum grade point average of 3.00 for work done at the University is required for graduation.

Typical Course Schedule for Resident M.Eng. Students

First Year	
Fall Semester	Spring Semester
ACS 501, Elements of Acoustics and Vibration	ACS 514, Electroacoustic Transducers
ACS 502, Elements of Sound Waves in Fluids	ACS 515, Acoustics in Fluid Media
ACS 503, Signal Analysis for Acoustics and Vibration	ACS Elective
Second Year	
Fall Semester	Spring Semester
ACS Elective	ACS Elective
ACS Elective	ACS 894 M.Eng. Capstone

M.Eng. Capstone Course

The M.Eng. Capstone Course requires a minimum of 21 credits for enrollment and completion of ACS 501, 502, 503, 514 and 515. Students with fewer credits can request an exception from these requirements from the instructor. Please refer to the course description section of the handbook for more detail.

Expected Time to Completion

The typical length of time to complete the Master of Engineering degree program as a resident student is 18 months.

Master of Science (M.S.) – Traditional

The traditional M.S. degree is based on a combination of graduate course work and research which culminates in a Master of Science thesis.

Course Requirements

The M.S. degree requires 30 credits, of which 24 credits are from courses and the remaining 6 credits are for research. The 18 of the 24 course credits are:

- ACS 501, Elements of Acoustics and Vibration
- ACS 502, Elements of Waves in Fluids
- ACS 503, Signal Analysis for Acoustics and Vibration
- ACS 505, Experimental Techniques in Acoustics (2 credits)
- ACS 514, Electroacoustic Transducers
- ACS 515, Acoustics in Fluid Media
- ACS 590, Colloquium (1 credit)

The remaining 6 course credits may be completed by taking elective courses in acoustics or approved courses related to acoustics taught by other departments at Penn State.

The M.S. degree also requires 6 research credits (ACS 600). Students who are funded by an assistantship or fellowship are strongly encouraged to carry 12 credits each semester and may add ACS 600 research credits to reach that total. However, any ACS 600 credits beyond 6 will not count toward the required 30 credits for the M.S. degree.

A minimum grade point average of 3.00 for work done at the University is required for graduation. Master's students do not need to be registered in the semester which they present their thesis.

Typical Course Schedule for M.S.

First Year	
Fall Semester	Spring Semester
ACS 501, Elements of Acoustics and Vibration	ACS 514, Electroacoustic Transducers
ACS 502, Elements of Sound Waves in Fluids	ACS 515, Acoustics in Fluid Media
ACS 503, Signal Analysis for Acoustics and Vibration	ACS 505, Experimental Techniques
	ACS 590, Colloquium
Second Year	
Fall Semester	Spring Semester
ACS Elective	ACS Elective
ACS Elective	ACS Elective or ACS 600 Thesis Research
ACS 600 Thesis Research	ACS 600 Thesis Research

Advisors and Thesis Research Projects

Prior to arriving at Penn State or in the first semester of residence, it is the responsibility of each student to determine what research is being conducted as well as which of the faculty members might be willing to serve as a thesis advisor. One way of learning what work is being done in the program is for the students to attend some of the various seminars conducted each semester.

M.S. students are eligible to receive funding in the form of a half-time research assistantship to the extent that funding is available. Many students are offered summer research assistantships; however, students may only enroll in summer courses if essential towards their degree.

M.S. Thesis Requirements

Thesis Committee. The committee for the M.S. thesis is comprised of the student's advisor and two or three additional acoustics faculty. All committee members must be approved by the Program Director. Although not required, it is sometimes helpful for the student to schedule a meeting with the committee prior to the final presentation in order to report progress or to obtain input and direction for the project.

Upon completion of the thesis research, and after editorial review by the advisor, the student will supply the members of their committee with a clean copy of the thesis at least 2 weeks prior to the thesis presentation.

Thesis presentation. All master's thesis presentations are open to the public and students are urged to attend the defense presentations of their colleagues to gain an appreciation of the proceedings. The student is expected to present in person. In very special circumstances an online live presentation may be approved by the advisor and Program Director.

The Acoustics Program Office must be notified at least 2 weeks prior to the scheduled thesis presentation so that announcements of the presentation can be circulated to faculty and students. The presentation should be approximately 45 minutes. Following questions from the audience, the public is asked to leave the room and the student is expected to answer questions from their committee without undue reliance upon the advisor. The committee may request that changes be made to the written thesis before agreeing to sign the final copy.

Thesis Format. The thesis must be written according to the guidelines listed in the Thesis Guide, which is available from the Fox Graduate School. Historically, the signatory page is the page most often rejected by the Fox Graduate School because of some error in format or in citing the titles of members of the committee. The student is urged to pay particular attention to this page and to consult the Acoustics Program Office to eliminate unnecessary problems. The thesis must be approved by at least two-thirds of the members of the committee.

Submitted Copies. An electronic PDF of the thesis is required by the Fox Graduate School and is uploaded directly through the Fox Graduate School website. Bound copies may be requested by the thesis advisor and/or committee members. The costs of thesis preparation, copying, and binding are the responsibilities of the student. The Acoustics Program Office requires an electronic copy.

Time to Completion

The entire M.S. degree program, for a resident student on a half-time assistantship, should typically require no more than 2.5 years to complete.

Section 4

Doctoral Degree in Acoustics



- Residency Requirements
- Course Credit Requirements
- Qualifying Exam
- Doctoral Committee
- Comprehensive Exam
- SARI Requirements

Doctor of Philosophy (Ph.D.)

The Doctor of Philosophy Ph.D. degree is conferred in recognition of high quality, productive scholarship. The applicant must be admitted to the Graduate Program in Acoustics as a Ph.D. student. Admission to the program will permit the student to begin taking classes and working toward a doctoral degree.

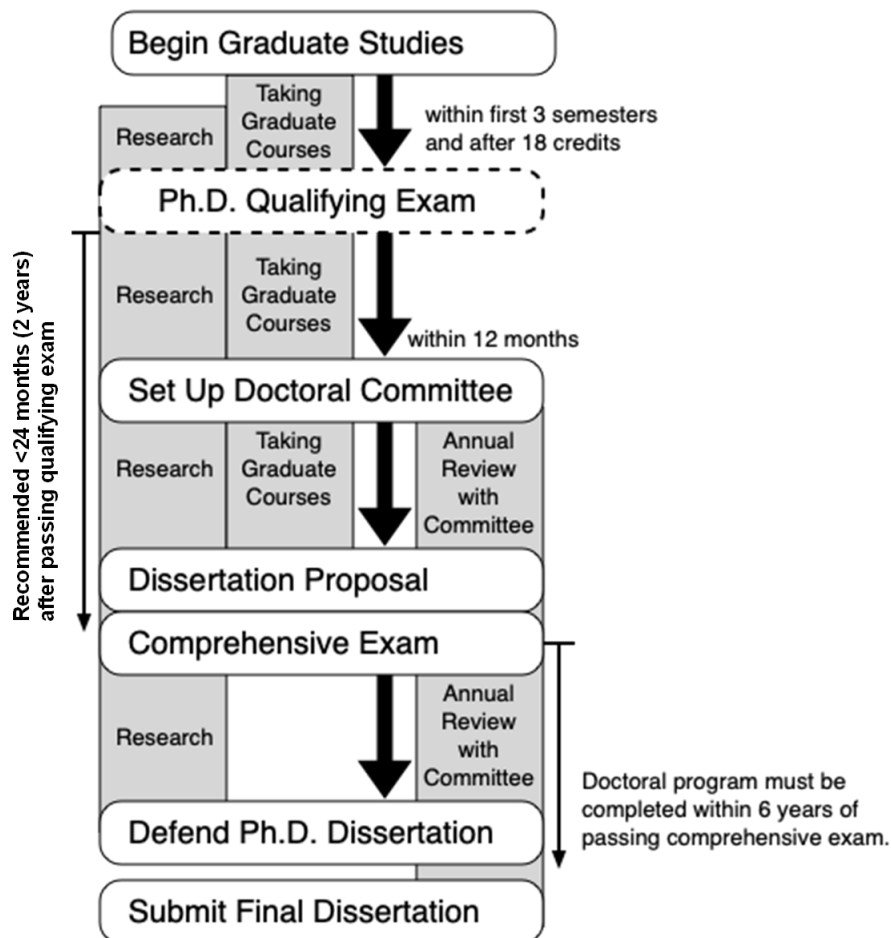
Residency Requirements for the Ph.D.

All Ph.D. students must satisfy the University residency requirement. Between admission into the Ph.D. program and completion of the degree, the candidate must physically spend two consecutive semesters (Fall and Spring or Spring and Fall) as a registered full-time student engaged in academic work in-person at the University Park campus. Please note ACS 601/611 (thesis research) may not be used to meet the full-time residency requirement. Please see the Fox Graduate School policy:

<https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-600/gcac-601-residency-requirement-research-doctorate>

Flow Chart of Progress through the Ph.D. Program

The flowchart below summarizes the progress through the Ph.D. program toward completion of the degree. Each step will be explained in greater detail in the following sections.



Course Requirements for the Ph.D.

The Ph.D. in Acoustics requires a minimum of 36 course credits. Students admitted to the Ph.D. Program in Acoustics may satisfy the course requirements in two ways.

1. A student admitted to the Ph.D. program with a bachelor's degree must complete a minimum of 36 course credits as follows. The student must complete 21 credits of required acoustics courses (see list below), 3 credits of mathematics from an approved list of math courses, and 12 course credits from electives at the 400, 500, and 800 level (with no more than 6 credits at the 400 level and at least 6 credits at the 500 level). The student's doctoral committee may require the student to take additional courses beyond the 36-credit minimum, as deemed relevant to the student's research topic.
2. A student admitted to the Ph.D. program with a master's degree must satisfy a minimum of 36 course credits as follows. The student may satisfy some or all of the 21 credits of required core acoustics courses either by having previously completed those courses during the M.Eng. or M.S. at Penn State or by obtaining a waiver from the Acoustics Program Director for having completed equivalent courses from another institution. The student must also complete 12 additional course credits of electives at the 400, 500, and 800 level (with no more than 6 credits at the 400 level and at least 6 credits at the 500 level) along with any required acoustics or math courses not satisfied by prior completion or waiver. The student's doctoral committee may require the student to take additional courses beyond these requirements, as deemed relevant to the student's research topic.

	Admitted with B.S.	Admitted with M.S.
Credits from required core courses	21	21*
Credits from approved math courses	3	3*
Credits from electives	12	12
Maximum research credits for grade	12	12

**May be satisfied through completion of M.S. degree at Penn State or waived upon approval by the Acoustics Program Director for equivalent courses taken during M.S. degree at another institution.*

Required core courses for Acoustics Ph.D. Students

- ACS 501, Elements of Acoustics and Vibration
- ACS 502, Elements of Waves in Fluids
- ACS 503, Signal Analysis for Acoustics and Vibration
- ACS 505, Experimental Techniques in Acoustics (2 credits)
- ACS 514, Electroacoustic Transducers
- ACS 515, Acoustics in Fluid Media
- ACS 523, Advanced Signal Analysis and Vibration II
- ACS 590, Colloquium (1 credit)

In addition to these course requirements, a Ph.D. student may also take 600-level research credits. A maximum of 12 credits of 600-level research credits may be taken for a letter grade and research credits may not be counted towards course credit requirements. Additional 600-level research credits may be taken as needed to maintain full-time status, but all research credits beyond 12 will be assigned an "R", except in the case of academic or disciplinary sanctions, in which case an "F" or "XF" grade may be assigned as appropriate.

List of Approved Math Courses for the Ph.D. in Acoustics (3 credits) *
EMCH 524A, Engineering Mathematics I
EMCH 524B, Engineering Mathematics II
ME 544, Engineering Mathematics
STAT 500, Applied Statistics, or equivalent (there are 400-level stat courses that cover similar content)
STAT 501, Regression Methods
STAT 502, Analysis of Variance and Design of Experiments
STAT 505, Applied Multivariate Statistical Analysis
MATH 405, Advanced Calculus for Engineers and Scientists I
MATH 411, Ordinary Differential Equations
MATH 412, Fourier Series and Partial Differential Equations
MATH 421, Complex Analysis I
MATH 513 Partial Differential Equations I
<i>*Approval may be requested from the Acoustics Program Director to substitute a different math course</i>

The table below shows a typical course schedule for the first two years of a Ph.D. program.

First Year	
Fall Semester	Spring Semester
ACS 501, Elements of Acoustics and Vibration	ACS 514, Electroacoustic Transducers
ACS 502, Elements of Waves in Fluids	ACS 515, Acoustics in Fluid Media
ACS 503, Signal Analysis for Acoustics and Vibration	ACS 523, Signal Analysis for Acoustics and Vibration II*
Math course from list of approved courses*	ACS 505, Experimental Techniques in Acoustics
	ACS 590, Colloquium
Summer (May or June) Ph.D. Qualifying Exam	
Second Year	
Fall Semester	Spring Semester
Elective	Elective
Elective	Elective or ACS 600 Thesis Research
ACS 600 Thesis Research	ACS 600 Thesis Research

* Discuss with your advisor whether to take courses or research credits

A minimum grade point average of 3.00 for work done at Penn State is required for graduation. Students on assistantship should be enrolled in 12 credits/semester.

English Competency

The Graduate School at Penn State ([GCAC-605](#)) requires that all Ph.D. students demonstrate high level competence in the use of the English language. For Ph.D. students in the Acoustics program, the level of English Competency (written and oral) will be assessed as part of the Acoustics Qualifying Exam. Students will demonstrate their ability to communicate in written English through the Written Exam – Part 2. English speaking competence will be assessed during the Oral Interview. These portions are described in detail below.

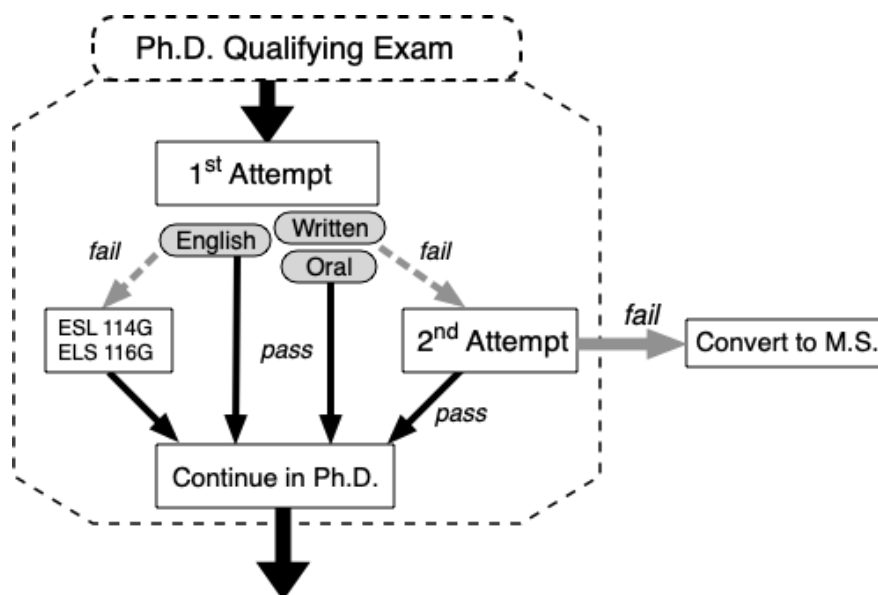
Students for whom English is not their first language and who fail to demonstrate satisfactory verbal competence will be required to take (and pass with a B or higher grade) ESL 114G, American Oral English for Academic Purposes. Students for whom English is not their first language and who fail the written part of the assessment will be required to take (and pass with a B or higher grade) ESL 116G, Composition for Academic Disciplines.

Students for whom English is their first language but who fail the verbal part of the assessment will be required to take (and pass with a B or higher grade) ENG 101G. Students for whom English is their first language but who fail the written part of the assessment will be required to take (and pass with a B or higher grade) ENG 102G.

Acoustics Ph.D. Qualifying Exam

All students wishing to pursue a doctoral degree at Penn State must pass a qualifying examination. The purpose of the qualifying examination is to assess whether or not the student is well grounded in the fundamental knowledge of acoustics and has demonstrated evidence of critical thinking skills necessary to be a successful doctoral researcher. The student is expected to demonstrate sufficient intellectual capacity and maturity to progress successfully through the course work and other organized aspects of the Ph.D. program. Please see the Fox Graduate School policy [GCAC-604](#) for more information.

This flow-chart and the following text explain the process for the Ph.D. Qualifying Exam.



The Acoustics Ph.D. Qualifying Exam is offered annually. **Students must make their first attempt to pass the Qualifying Exam within the first three semesters of entry into the doctoral program.**

In order to sit for the Acoustics Qualifying Exam, the student must:

- Have been admitted to the Acoustics Program as a Ph.D. student.
- Have completed at least 18 credits in courses eligible to be counted toward the graduate degree (these may be graduate credits earned previously at other recognized institutions from which transfer credits would be accepted) or the equivalent upon approval of the program.
- Have maintained a grade-point average of 3.00 or greater for work done at Penn State while a graduate student.
- Have no incomplete or deferred grades.

ACS Qualifying Exam Format
<p>Written Exam – Part 1: 4 hours to solve 6 ACS 501 and ACS 502 related problems. Students may bring 5 pages of hand-written notes.</p>
<p>Written Exam – Part 2 (with English Competency): 48-hour take home exam on an expected 1–2-hour ACS 501 and ACS 502 problem, adapted from a published research journal article. Student response includes written answers/solutions to the problem and a 3–5-page typed paper summarizing the article, analyzing the approach, explaining the results, and proposing how the research could be continued/extended.</p>
<p>Oral Interview: 90 minutes, with the first 5-10 minutes an oral presentation (no PowerPoint or prepared visuals, whiteboard ok) by the student on the written exam - part 2 problem followed by Q&A based on the written exam – part 1 and other acoustics topics.</p>

Qualifying Exam Evaluation:

The student will be evaluated on all three parts of the exam by the committee using an established rubric (pre-defined by the committee and shared with the students) to determine whether the student:

- 1) Passes the exam with no further follow-up;
- 2) Provisionally passes the exam provided they:
 - a. Redo parts of the written exam – Part 1 or 2
 - b. Redo the oral interview; or
 - c. Other (at the discretion of the committee); or
- 3) Fails the exam for which the committee decides whether a re-take option is provided or whether the student is terminated from the PhD program.
 - a. Appeals allowed per Graduate School Policy
 - b. The student may be allowed to complete an M.S. thesis, at the discretion of the student's advisor.

Timeline:

The Qualifying Exam will be offered in May/June each year for students taking the exam for the first time. Students who fail the exam on the first attempt and who have been granted an opportunity to re-take all or parts of the exam, should expect the re-take attempt to occur in August of the same year. No students will be allowed to take the exam for the first time in August.

The Qualifying examination is supervised by the Ph.D. Qualifying Exam committee, which is composed of four faculty members from the Acoustics Program. Upon completion of the written and oral portions of the exam, the committee will notify students in writing whether or not they have passed the exam; the outcome will also be reported to the Program Office and to the Fox Graduate School.

Doctoral Committee

A Ph.D. student's Doctoral Committee must be formed within 12 months of passing the Acoustics Ph.D. Qualifying Exam. The student and the student's research advisor should discuss possible committee members. The committee must have a minimum of four members. Three of these must be members of the Acoustics Faculty and one must be from a department other than Acoustics (and preferably from a designated related area that the student will pursue). In special situations, a member of the Acoustics faculty who is also a member of the faculty in another department at the University, may be approved as the outside member. All members of the doctoral committee must be members of the Graduate Faculty and not retired. The specific rules for forming a doctoral committee are outlined in policy [GCAC-602](#). Students must send their list of potential committee members to the Program Director for approval. Upon approval, the program staff will begin the online process of officially forming the committee. Signatures will be obtained through an online routing system which will culminate in an email sent from Adobe Sign to the student, committee members, and the Fox Graduate School, indicating that the committee formation is complete.

Policy [GCAC-603](#) outlines the responsibilities of the doctoral committee. The chairperson of the doctoral committee is responsible for the administrative aspects of the doctoral program such as coordinating the committee's activities and convening meetings of the committee. In most cases, the chairperson is also the research advisor. The student's research advisor has the following specific responsibilities:

- Directs the research program.
- Serves (and likely chairs) on the student's doctoral committee.
- Assists the student in selecting courses.
- Supervises preparation of documents such as the research proposal and dissertation.

Special Members may also serve on doctoral committees.

- Special members do not need to be Penn State Faculty.
- The Program Office will need to send a memo to the Fox Graduate School to request a Special Member be allowed on a committee. This memo will require a short paragraph from the research advisor and student as to what benefit the Special Member brings to the committee along with the proposed Special Member's resume.
- A Special Member needs to be present and record a grade for the comprehensive exam as well as the final defense.

Special Signatory: Members differ from Special Members in that they may be:

- A Penn State faculty member or a person outside of the university with expertise in a particular field who is unable to attend the final defense; or
- A former Penn State faculty member who is currently working at another institution.

A Special Signatory does not need Graduate School approval and does not grade or sign the comprehensive exam or the final defense. Their name does need to be entered on the graduate school's eTD system under "committee" and then the Special Signatory will sign for approval of the final dissertation.

Within one semester after the doctoral committee is formed, a planning meeting must be scheduled with these objectives:

- Review of student's academic record as well as work and educational experiences.
- Presentation of ongoing research by the student.
- Identification of elective courses relevant to the research program that the student should take
- Approval of a tentative time schedule for the student's program and taking of the comprehensive examination.

The doctoral committee chairperson will provide a written record of the planning meeting to the Acoustics Program Office for inclusion in the student's file, as required by [GCAC-603](#).

The doctoral committee is required to meet at least once a year to review the status of the student's program of study and research. The committee may meet at any other time the advisor or student feels the objective or character of the research has changed significantly. The results and recommendations of the meeting will be communicated in writing by the Committee Chairperson to the Acoustics Program Director for review and inclusion in the student's file.

Comprehensive Examination

Penn State Fox Graduate School policy [GCAC-606](#) requires all PhD students to pass a Comprehensive Exam in order to become a PhD candidate. The purpose of the comprehensive examination is to evaluate the student's mastery of acoustics and assess a student's general preparedness to do research in their chosen research area. As such, this exam should be administered relatively early on in the student's program, recommended within 2 years of completing the qualifying exam. The student must be registered as a full-time or part-time student for the semester in which the comprehensive examination is taken. A minimum grade point average of 3.0 for work done at Penn State is required for the comprehensive examination and for graduation. The Program Office should be notified at least **two weeks prior** to the scheduled comprehensive exam in order for the Fox Graduate School to process the paperwork necessary for the exam.

ACS Comprehensive Exam

Max 10-page, single-spaced proposal including sections: background, innovation, research strategy, and study timeline.

Oral Exam consisting of a 30 to 40-minute presentation describing the research proposal followed by questions from the committee on the proposal and related topics.

Evaluation:

After preparing and presenting the proposal, the committee shall evaluate the written and oral examination using a rubric developed by the curriculum committee to determine whether the student:

- 1) Passes the exam with no further follow-up;
- 2) Provisionally passes the exam provided they:
 - a. Take 1-2 courses recommended by the committee
 - b. Complete a follow-on writing as assigned by the committee, or
 - c. Other (at the discretion of the committee); or
- 3) Fails the exam for which the committee decides whether a retake option is provided or whether the student is terminated from the PhD program.
 - a. Appeals allowed per Graduate School Policy

Guidance (for advisor and student):

The advisor and other committee members should provide very little assistance in the preparation of the proposal and the presentation for the comprehensive exam. At most, the advisor should review the proposal for big picture ideas to ensure the proposal is reasonable given the resources available to the student; they should not provide substantial revision or editing feedback. Similarly, the advisor should not provide feedback on the oral presentation. This minimal oversight allows the committee to better evaluate the current skills and abilities of the student taking the examination while there remains time for corrective action to be taken, if necessary.

Timeline:

After passing the comprehensive examination, a student registers for the noncredit course ACS 601 (Thesis Preparation, full time) or ACS 611 (Thesis Preparation, part-time). Under University rules, students registered in ACS 601 may also take 3 credits (maximum) of course work for audit at no additional fee or 3 credits (maximum) of course work for credit by paying an additional flat fee.

After passing the comprehensive examination, the doctoral program must be completed within six years or a second comprehensive examination is required ([GCAC-606](#)).

Continuous Registration

All students who have passed their comprehensive exam and who have satisfied the two-semester full-time residence requirement must register each fall and spring semester until graduation. If, for compelling reasons, a Ph.D. student will not be registered for an extended period then the Senior Associate Dean of the Fox Graduate School will consider a petition for a waiver of the continuous registration requirement. This petition must come from the doctoral committee chairperson and must carry the endorsement of the Program Director.

Written Dissertation and Final Oral Exam

All Ph.D. candidates must write a dissertation. Please see Fox Graduate School policy [GCAC-607](#). The topic of the study must be original and must be developed in large part by the student. Thus, the purpose of writing the dissertation is for the student to demonstrate the ability to pose a new relevant problem, conduct the necessary research, and summarize the results in a well-organized written form. Further information on the required format of the dissertation can be obtained from [Theses and Dissertations](#) published by the Fox Graduate School.

Once completed in manuscript form and approved by the research advisor, the dissertation is given to the student's Doctoral Committee whose members read it and then administer a Final Oral Exam, or Defense. A clean draft copy of the dissertation should be provided to the student's Doctoral Committee at least 2 weeks prior to the oral exam (defense). This final oral exam (defense) is scheduled by the Graduate School in the same way that the Comprehensive Exam was scheduled; as with the other exams, the student must be registered, and the current tuition bill must have been paid in order to take the exam. The Program Office should be notified at least **two weeks prior** to the scheduled dissertation defense in order for the Fox Graduate School to process the paperwork and announce the defense to faculty and students.

The final oral examination consists of an oral presentation of the dissertation by the student and a period of question and responses. This phase of the final oral exam is open to the public. Then the public is excused, and the student meets with their doctoral committee who may continue the questioning. Although the questions should relate in large part to the dissertation, they may cover the student's whole program of study, since one of the purposes of the examination is to assess the general scholarly attainments of the student. The committee decides whether a student passes the exam; as with the Com-prehensive Exam, at least two-thirds of the committee must vote in favor of passing the student for the student to have passed the exam. Please see Fox Graduate School policy [GCAC-608](#).

When the final oral examination has been passed and the dissertation accepted (after incorporating the changes made by the committee), it should be submitted in final form to the Graduate School (see the [Theses and Dissertations](#)) as an electronic PDF upload. A final electronic PDF of the thesis is also required to be sent via email to the Acoustics program office.

Time to Completion for Ph.D.

Penn State's Fox Graduate School allows 8 years after successful completion of the qualifying exam for completion of a doctoral degree. The Acoustics Program anticipates a student will complete the doctoral degree in approximately 3 years beyond the completion of a master's degree, or 5 years without a master's degree [GCAC-610](#)

Scholarship and Research Integrity: SARI @ PSU

SARI @ PSU is a responsible conduct of research (RCR) education program for students, postdocs, and faculty at Penn State. SARI ([Scholarship and Research Integrity](#)) is designed to create an awareness of ethical principles and established professional norms in the performance of all activities related to scholarship and research. Ultimately, our goal is to further foster trust among scientists and to increase the public's support for research. Penn State requires RCR training for all graduate students, post-docs, and new faculty to ensure the ethical conduct of research at the University.

There are two parts to SARI @ PSU for graduate students: an online course offered through the Collaborative Institutional Training Initiative ([CITI Program](#)) and a minimum of five hours of discussion-based activities. Each graduate department or program has a specific SARI @ PSU plan that satisfies the Part 2 Requirement.

Acoustics graduate students are expected to satisfy the SARI requirements by completing:

- 4 hours of discussion-based lectures offered during fall/spring semesters by the Acoustics program
- AND 1 hour from one of the ORP (Office for Research Protections) SARI approved courses
- AND the Responsible Conduct of Research Training online through [CITI](#)

Section 5

Resources for Graduate Students

Very important link to read thoroughly: <https://gradschool.psu.edu/>

Affirmative Action Office

This office is committed to ensuring the University maintains an environment free of harassment and discrimination. <https://affirmativeaction.psu.edu/>

Career Services

The office located at 101 Bank of America Career Services Building, is fully equipped to assist graduate students in the preparation of resumes and curriculum vitae and in developing effective interviewing skills. Career Services hosts a career fair that is open to graduate as well as undergraduate students.

<https://studentaffairs.psu.edu/career>

Code of Conduct

Available from The Office of Student Conduct <https://studentaffairs.psu.edu/student-accountability/code-procedures/student-code-conduct>

Counseling and Psychological Services (CAPS)

CAPS can help students resolve personal concerns that may interfere with their academic progress, social development, and satisfaction at Penn State. Some of the more common concerns include difficulty with friends, roommates, or family members; depression and anxiety; sexual identity; lack of motivation or difficulty relaxing, concentrating or studying; eating disorders; sexual assault and sexual abuse recovery; and uncertainties about personal values and beliefs.

<https://studentaffairs.psu.edu/counseling>

The Office for Disability Services

Provides information and assistance to students with disabilities.

<http://equity.psu.edu/student-disability-resources/>

Educational Equity

Fostering diversity and inclusion at Penn State

<http://equity.psu.edu/>

Graduate & Professional Student Association (GPSA)

GPSA <https://gpsa.psu.edu/> is the representative body for all graduate and professional students. The GPSA addresses issues of concern to graduate students and elect's members to sit on shared governance bodies of the University. The GPSA also organizes social events for graduate students.

Graduate Degree Programs Bulletin

The Graduate Degree Programs Bulletin <https://bulletins.psu.edu/graduate/> is Penn State's comprehensive source for graduate academic information and program requirements.

HUB- Robeson Center

The HUB- Robeson Student Center is the site for multiple student services including restaurants, a copy center, a bank (Penn State Federal Credit Union), STA Travel, a convenience store, the Penn State Bookstore, the Center for Arts and Crafts, art galleries, and the main information desk for the University.

Health Care for Graduate Students

Penn State students are eligible to purchase a student health insurance plan. Visit University Health Services at <https://studentaffairs.psu.edu/health> to learn more.

The Office of Human Resources

Provides resource booklets on child care facilities in the State College area and summer programs and camps for school-age children.

<https://hr.psu.edu/employee-and-family-resources/your-family/child-care-resources/>

International Student Services

This office will answer questions and needs that are unique to international students. The office is located at 410 Boucke Building.

<https://global.psu.edu/>

Lions Pantry

Provides sustenance to Penn State students experiencing food insecurity.

<https://thelionspantry.psu.edu/>

Living in State College

Helpful information for living in State College:

Downtown State College: <https://www.visitpennstate.org/>

Central PA Convention & Visitors Bureau: <https://www.downtownstatecollege.com/>

Penn State Police Escort Service

This service is operated under the auspices of Police Services and will provide an escort for students walking on campus after dark. The escort service may be reached at 814-865-WALK (9255).

<https://police.psu.edu/safe-walk-service>

Off Campus Housing

Housing opportunities are listed in 213 HUB-Robeson Center. <https://studentaffairs.psu.edu/offcampus>

The Office of Student Aid

This is a good place to begin the search for financial assistance. <https://studentaid.psu.edu/>

Office of Student Conduct

This office is responsible for dealing with violations of the Code of Conduct including sexual assault, harassing, stalking, and physical assault. <https://studentaffairs.psu.edu/conduct>

Pasquerilla Spiritual Center

Home to more than fifty spiritual organizations, the center is non-denominational and provides students with opportunities to explore ethical and spiritual issues. <https://studentaffairs.psu.edu/spiritual>

Problem Resolution

Graduate students occasionally have difficulties with their advisors, their programs or an academic matter associated with their programs. The first step in problem resolution is always to talk with your advisor and then with the program chair or department head and then the associate dean of your college. If satisfactory resolution remains elusive, the associate dean of the Graduate School is available to provide guidance and maintain neutrality. Issues discussed during meetings with the

associate dean will remain confidential if requested by the student.
Appointments may be made by calling 814-865-2516.

Research Protections

This office oversees all research on human participants, animals, radioisotopes and biohazardous materials. You must have permission from this office prior to conducting research involving any of these subjects. Permission cannot be obtained after the work has begun. <https://researchsupport.psu.edu/orp/>

Student Life/Resources

A comprehensive list of links provided by The Graduate School. Topics include general information for the current graduate student and the graduate assistant; professional development opportunities; research; and curriculum.

Thesis/Dissertation Information

The University guide for preparing your thesis/dissertation, submission form, calendar for submission, and other pertinent information and forms can be found here.
<https://gradschool.psu.edu/academics/theses-and-dissertations>

University Libraries

Search the University Libraries online for books, articles, databases, resources by subject, reference materials, etc. <https://libraries.psu.edu/>

The Graduate Writing Center

The center is sponsored by the Graduate School and provides assistance to graduate students who wish to enhance their writing skills. Graduate students are invited to schedule appointments for one-on-one discussions of their writing projects. <https://gwc.psu.edu/>

Section 6

General Graduate Student Policies



Graduate Student Policies

The following are up-to-date policies and procedures that affect students of the Penn State Graduate School. Additional policies are located in [Graduate Education Policies](#).

Further information on all of the topics below may be found: <https://gradschool.psu.edu/academics/graduate-education-policies>

Conduct and Integrity

- [Graduate Student Conduct \(GCAC-801\)](#)
- General Standards of Professional Ethics (AD47)
- Academic Integrity Policy (49-20)
- [Academic Integrity \(G-9\)](#)
- Discrimination, Harassment, Sexual Harassment, and Related Inappropriate Conduct (AD85)
- [Addressing Allegations of Research Misconduct \(RP02\)](#)

Grading

- Basis for Grades (47-20)
- [Grade Mediation and Adjudication \(G-10\)](#)
- [Procedures for Termination of the Degree Program of a Graduate Student for Unsatisfactory Scholarship \(GCAC-803\)](#)

Graduate Assistants

- [GSAD-901 Graduate Assistants \(GSAD-901\)](#)
- [Graduate Student Leave of Absence \(GSAD-906\)](#)
- [Procedures for Termination of Assistantships Due to Inadequate Performance \(GCAC-804\)](#)
- GCAC-902 Student Instructional Assistants in Graduate (500- and 800-Level) Courses
- [Graduate Student Instructional Assistant \(GSIA\) Conflict of Interest \(COI\) Disclosure Form](#)
- Graduate Assistantships for Students in Joint Degree Programs
- Summer Graduate Lecturer/Researcher

Intellectual Property

- Ownership and Management of Intellectual Property (IP01)
- Co-authorship of Scholarly Reports, Papers and Publications (IP02)

Privacy/Confidentiality

- University Policy on Confidentiality of Student Records (AD11)
- Privacy Statement (AD53)

Residency

- [Residency for tuition purposes](#)
- GCAC-601 Residency Requirement - Research Doctorate
- [Residency Requirement - Professional Doctoral Degree \(GCAC-700\)](#)

Other Topics

- Course Drop Policy (34-89)
- GSAD-920 Graduate Student Policy for International Travel
- [Recommended Practices in Graduate Education](#)
- [Procedures for Resolution of Problem \(GCAC-802\)](#)
- [World Campus Course Registration for Graduate Assistants, Graduate Fellows, and Graduate Trainees and STAP Recipients \(GSAD-503\)](#)

Additional policies may be found from the following sources:

- [Graduate Education Policies](#)
- [Office of the Vice President for Research at Penn State](#)
- [University Policy Manual \(GURU\)](#)

Academic Status

A graduate student is expected to maintain at least a 3.00 cumulative grade point average while pursuing a graduate degree. A student will be placed on departmental academic probation at the beginning of the first semester after his or her cumulative grade point average falls below 3.00 and will remain on probation until the cumulative grade point average rises above 3.00. If the student's semester grade average for any subsequent semester while the student is on probation is below 3.00, then the student will be dropped from the degree program. A student dropped from degree program status because of a deficient GPA can continue to complete graduate course work as a non-degree student. Upon earning a GPA of 3.0 or better, the student can apply for admission to the degree program.

Reappointment of a student as a research assistant when the student is on academic probation will be reviewed carefully by the student's advisor, the Graduate Program Officer, and the Program Director.

If a student is on academic probation, he or she must see his or her advisor and the Graduate Program Officer for the Graduate Program in Acoustics at the beginning of the semester and reassess the choices of the courses that are to be taken that semester. The Graduate Program Officer is authorized by the Program to require the student to take various remedial courses in conjunction with or before enrolling in specified courses administered by the Program.

If a student should be dropped from the program, it may be possible for a student to enroll as a non-degree student and take selected courses to better prepare for graduate work and then to re-apply for admission.

Academic Advisors

The academic advisor, in conjunction with the thesis or doctoral committee, is the primary source of guidance for the student's progress through his or her course work, research, and writing of the thesis, paper, or dissertation.

Advisors to students in the Graduate Program in Acoustics are appointed by the Program Director from among the Program's faculty. Faculty supervising incoming students working on sponsored research programs will normally serve as the academic advisor to such students. It is the responsibility of each student to provide the Acoustics Program with a statement of interests or areas in which the student desires to focus his or her academic work. The Program will in turn provide the students with a list of faculties whose interests or work coincide with that of the student. The student should then schedule a meeting with each faculty member to discuss the potential of establishing an advisor/advisee relationship. Once a student and a faculty member have agreed to work together, the Program Director should be consulted, and the appointment made. The Graduate Program Director will serve as a temporary advisor for incoming students who, by the first day of the semester, do not yet have an advisor.

From time to time, the student and advisor relationship may experience discord; however, such periods are to be expected and should be resolvable. In rare cases, the advisor and student relationship are not mutually successful and the discord appears to be irresolvable, then the Program Director should be consulted. The Program Director will decide whether a termination of the relationship is appropriate. It is the responsibility of the student to identify a new faculty member willing to assume the

role of advisor. Once the student and the new faculty member have agreed to work together, the Program Director should be consulted, and the appointment made.

Course Credit Load

Full-time students and students receiving fellowships should register for 9-12 credits per semester. All students (US and International) receiving assistantships should register as follows: Category Credits 1/4-time Assistantship 9-14, 1/2-time Assistantship 9-12, 3/4-time Assistantship 6-8. Students may apply to the Graduate School for one credit beyond this limit, provided they have the approval of their advisor, work supervisor and the Program Director. International students with student visas must maintain full-time academic status as determined by their type of assistantship or must be registered for at least 9 credits if not supported by an assistantship during both the Fall and the Spring semesters.

Full-Time Academic Status--Self-supported or fellowship students who register for at least 9 credits are considered to be engaged in full-time academic work for that semester. If such a student wishes to register for more than 15 credits, an exception to the normal maximum load must be granted through petition (with advisor's approval) to the Office of Graduate Enrollment Services. Students holding fellowships, traineeships, or other awards that require full-time summer registration should register for a minimum cumulative total of 9 credits (over all summer sessions), or SUBJ 601 (in the case of post-comprehensive doctoral candidates). A graduate assistant whose semester or summer session credit load meets or exceeds the minima in the above credit table and whose assistantship duties are directly related to his or her degree objectives is considered by the Graduate School to be engaged in full-time academic work for that semester or summer. A post-comprehensive doctoral candidate who is registered for SUBJ 601 also is so considered.

Part-Time Academic Status--A student who in any semester or summer session is registered for study but who does not meet the criteria for full-time status is considered to be engaged in part-time academic work for that semester. This includes students registered for SUBJ 611.

Credit Loads for International Students--The Department of Homeland Security requires that international students proceed in a timely fashion toward completion of their degrees, as established by the academic department and (usually) stated on their initial immigration document. Failure to maintain normal progress toward completion of the degree during this period will jeopardize the student's ability to continue academic study, adjust status, or seek future employment in the United States. Because of this, students should not be enrolled less than full-time during fall or spring semester without prior approval of the University Office of Global Programs Directorate of International Student & Scholar Advising (DISSA). The U.S. Department of Homeland Security requires DISSA to report violations of status, including failure to maintain full-time enrollment. The following is intended to provide guidance for international graduate students and for DISSA in determining full-time status: A graduate student is considered full-time if registered for a minimum of 9 credits, excluding courses taken for audit. After a Ph.D. candidate has successfully completed the comprehensive examination; registration for SUBJ 601 is also considered full time. • On rare occasions, and under exceptional circumstances, international students in master's degree programs who have completed all required course work and, if applicable, research for their degree, may be granted an exception to the need to maintain full-time status as defined above, for a limited period (in no case to exceed two semesters), by special petition to DISSA in advance of the semester in which the exception is needed. This request must be initiated by the student using the DISSA eForm system. The academic advisor will be asked through this eForm system to justify the reduced course load. • Under all circumstances, international students must be enrolled--either full-time or approved by DISSA for a reduced course load.

Grades

A +/- grading system is used in both graduate and undergraduate level courses. Grades with plus and minus include, A 4.0; A-, 3.67; B+, 3.33; B, 3.0; B-, 2.67; C+, 2.33. A minimum grade-point average of 3.00 for work done at the University is required for all graduate degrees.

Resources for Reporting Wrongdoing

A MESSAGE TO ALL FACULTY, STAFF AND STUDENTS ABOUT REPORTING WRONGDOING AND AVAILABLE RESOURCES (on behalf of the Office of the President 5/23/19)

All members of the Penn State community are asked to remain mindful of their individual commitment to [Penn State's values](#) by helping to keep the University a safe and ethical institution. In addition, as members of this community, everyone should be responsible stewards of University funds, whether generated from state, federal, student or other sources.

The University does not condone wrongful conduct by any member of the Penn State community, no matter what position he or she may hold.

Penn State University encourages the reporting of misconduct. **If you see something, say something.**

If you report misconduct, be assured that the University will protect you from retaliation.

See [AD67](https://policy.psu.edu/policies/ad67) (<https://policy.psu.edu/policies/ad67>) or contact the [Office of Ethics & Compliance](http://www.universityethics.psu.edu/) (<http://www.universityethics.psu.edu/>) for more information.

The following resources are available for faculty, staff, students, and others:

TO MAKE A REPORT

See a [summary of types of misconduct and how to report](http://reporting.psu.edu) (<http://reporting.psu.edu>).

If at any point you are unsure where to report a non-emergency, you may contact:

- The Office of Ethics and Compliance, Monday-Friday, 8am-5pm ET: **814-867-5088**
- The Penn State Hotline, 24/7: **800-560-1637** or <http://hotline.psu.edu>

Crime or emergency situation

- Contact the campus police or security office
- In an emergency, dial **911**
- Penn State has established a [Responsible Action Protocol](#), in response to the University Park Undergraduate Association's campaign for a medical amnesty policy. Effective January 2018, the Responsible Action Protocol was updated and now reflects the following:
 - A student who acts responsibly by notifying the appropriate authorities (e.g. calling 911, alerting a resident assistant, contacting police) AND meets one or more of the following criteria typically will not face University conduct action for his or her own use or possession of alcohol or drugs. However, the student will be required to attend an approved alcohol or drug education program, such as BASICS or the Marijuana Intervention Program (MIP); the fee will be waived. When the student's behavior involves other Code of Conduct violations (e.g., vandalism, assault, furnishing to minors) the additional behavior may be subject to conduct action. If a student exhibits a pattern of problematic behavior with alcohol or drugs, that student may be subject to conduct action.
 - The criteria which invoke the Protocol are:

- A student seeks medical assistance *for themselves* when experiencing an alcohol or drug overdose or related problems
- A student seeks medical assistance *for a peer* suffering from an alcohol or drug overdose or related problems and remains with the peer until appropriate authorities arrive
- A student suffering from an alcohol or drug overdose or related problems, *for whom another student seeks assistance* and remains with the peer until appropriate authorities arrive, will also not be subject to disciplinary action for alcohol violations.

Suspected ethical or policy violations

(including fraud, theft, conflict of interest, abusive or intimidating behavior, retaliation, athletics integrity or NCAA compliance)

- [Report employee misconduct to your supervisor or HR Strategic Partner](http://ohr.psu.edu/content/hr-strategic-partner-and-consultant-directory) (<http://ohr.psu.edu/content/hr-strategic-partner-and-consultant-directory>)
- [Report student misconduct to the Office of Student Conduct](http://studentaffairs.psu.edu/conduct) (<http://studentaffairs.psu.edu/conduct>) or **814-863-0342**
- Use [Penn State Hotline](http://hotline.psu.edu) (<http://hotline.psu.edu>) or **1-800-560-1637**. Both are anonymous and available 24/7

Child abuse, including child sexual abuse

- Contact the [Pennsylvania Child Welfare Services](https://www.compass.state.pa.us/cwis) “ChildLine” (<https://www.compass.state.pa.us/cwis>) – **800-932-0313**
- If the child is in immediate danger, dial **911** first
- You must also email AD72@psu.edu communicating that a report has been made. See more information on [AD72 \(Reporting Suspected Child Abuse\)](https://policy.psu.edu/policies/ad72) (<https://policy.psu.edu/policies/ad72>)
- Further details can be found in the Building a Safe Penn State: Reporting Child Abuse training available on the [Learning Resource Network](http://lrn.psu.edu) (<http://lrn.psu.edu>)

Behavioral threat

- Contact the [Behavioral Threat Management Team](http://btmt.psu.edu/) (<http://btmt.psu.edu/>) – **855-863-BTMT (2868), or 814-863-BTMT (2868)**.

Bias or discrimination

- To report behavior *by an employee*, Contact the Affirmative Action Office at **814-863-0471**
- To report behavior *by a student*, contact the Office of Student Conduct at **814-863-0342**
- Visit the [Report Bias website](https://reportbias.psu.edu) (<https://reportbias.psu.edu>) (For student reporting only)

Hazing

- Contact the Office of Ethics and Compliance, Monday-Friday, 8 a.m.-5 p.m. ET: **814-867-5088** or email psoc@psu.edu
- Report online 24/7 via the [Penn State Hotline](http://hotline.psu.edu): (<http://hotline.psu.edu>) or **800-560-1637**
- For concerns related to students and/or student organizations:
- Contact the Office of Student Conduct at **814-863-0342** or email StudentConduct@psu.edu

- Report online using the [Incident Reporting Form](https://cm.maxient.com/reportingform.php?PennState&layout_id=0)(https://cm.maxient.com/reportingform.php?PennState&layout_id=0)
- For concerns related to employees:
- Contact Human Resources, Labor and Employee Relations at **814-867-0041**

Sexual harassment and other forms of sexual misconduct**

- **To make a report to the University:**
- Contact the [University's Title IX Coordinator](mailto:titleix@psu.edu) (titleix@psu.edu) or **814-867-0099**
- **To file an online report:** Visit the [Office of Sexual Misconduct Prevention and Response's website](http://titleix.psu.edu/filing-a-report/) (<http://titleix.psu.edu/filing-a-report/>) to file an online report
- **To file an anonymous report:** The [Penn State Hotline](http://hotline.psu.edu) (<http://hotline.psu.edu>) is available 24/7 – **800-560-1637**. Both are anonymous and available 24/7
- **To file a discrimination or harassment complaint outside of the University:**
- The Office for Civil Rights (Philadelphia Office) at **215-656-8541** or email OCR.Philadelphia@ed.gov
- The Equal Employment Opportunity Commission (Philadelphia District Office) at **800-669-4000**
- The Pennsylvania Human Relations Commission (Harrisburg Regional Office) at **717-787-9780**

**** Additional information regarding information and resources available in relation to incidents of sexual harassment and/or misconduct (including a campus-specific list of victim support services and confidential reporting options) can be found at the [Office of Sexual Misconduct Prevention & Response](http://titleix.psu.edu/) (<http://titleix.psu.edu/>).**

Student Misconduct

- Contact [The Office of Student Conduct](http://studentaffairs.psu.edu/conduct) (<http://studentaffairs.psu.edu/conduct>) – **814-863-0342** or report using the [Incident Reporting Form](https://cm.maxient.com/reportingform.php?PennState&layout_id=0)(https://cm.maxient.com/reportingform.php?PennState&layout_id=0)

Hazing by any student organization or individual is against Penn State's code of conduct, and also a violation of Pennsylvania law. To report instances of hazing within any student organization or group, including fraternities and sororities, contact the [Office of Student Conduct](http://studentaffairs.psu.edu/conduct)(<http://studentaffairs.psu.edu/conduct>) – **814-863-0342**, or the [Penn State Hotline](http://hotline.psu.edu) (<http://hotline.psu.edu>) – **800-560-1637**.

Research-related

- Any research-related concerns should be directed to the [Office for Research Protections](mailto:orp@psu.edu) (orp@psu.edu) – **814-865-1775**
- Research misconduct concerns should be directed to **814-865-1775** or researchconcerns@psu.edu

RESOURCES

- [Policy AD88 – Code of Responsible Conduct](https://policy.psu.edu/policies/ad88) (<https://policy.psu.edu/policies/ad88>)
- [By-laws of The Pennsylvania State University \(section 8.13\)](http://news.psu.edu/story/143476/2013/01/04/employees-reminded-disclose-conflicts-interest)(<http://news.psu.edu/story/143476/2013/01/04/employees-reminded-disclose-conflicts-interest>)

- [Policy HR91 – Conflict of Interest](https://policy.psu.edu/policies/hr91) (<https://policy.psu.edu/policies/hr91>)
- [Policy RP02 – Addressing Allegations of Research Misconduct](https://policy.psu.edu/policies/rp02) (<https://policy.psu.edu/policies/rp02>)
- [Policy RP06 – Disclosure and Management of Significant Financial Interests](https://policy.psu.edu/policies/rp06) (<https://policy.psu.edu/policies/rp06>)
- [Policy AD74 – Compliance With Clery Act](https://policy.psu.edu/policies/ad74) (<https://policy.psu.edu/policies/ad74>)
- [Policy AD77 – Engaging in Outside Professional Activities \(Conflict of Commitment\)](http://policy.psu.edu/policies/ad77) (<http://policy.psu.edu/policies/ad77>)
- [Policy AD85 – Sexual and/or Gender-Based Harassment and Misconduct \(Including Sexual Harassment, Sexual Assault, Dating Violence, Domestic Violence, Stalking, and Related Inappropriate Conduct\)](https://policy.psu.edu/policies/ad85) (<https://policy.psu.edu/policies/ad85>)
- [Policy AD86 – Acceptance of Gifts and Entertainment](https://policy.psu.edu/policies/ad86) (<https://policy.psu.edu/policies/ad86>)
- [Policy AD91 – Discrimination and Harassment and Related Inappropriate Conduct](https://policy.psu.edu/policies/ad91) (<https://policy.psu.edu/policies/ad91>)
- [Student Code of Conduct](https://studentaffairs.psu.edu/support-safety-conduct/student-conduct/code-conduct) (<https://studentaffairs.psu.edu/support-safety-conduct/student-conduct/code-conduct>)

If it is not clear where to turn for assistance, any of these offices will guide you to someone who can help:

- Human Resources, Labor and Employee Relations at **814-867-0041**
- [Office of Ethics and Compliance](http://www.universityethics.psu.edu/) (<http://www.universityethics.psu.edu/>) at **814-867-5088**
- [Office of Affirmative Action](http://www.psu.edu/dept/aaoffice/) (<http://www.psu.edu/dept/aaoffice/>) – **814-863-0471**
- [Title IX Coordinator](mailto:titleix@psu.edu) (titleix@psu.edu) – **814-863-0471**
- [Office of Student Conduct](http://studentaffairs.psu.edu/conduct) (<http://studentaffairs.psu.edu/conduct>) – **814-863-0342**
- [Office of Internal Audit](http://www.internalaudit.psu.edu/) (<http://www.internalaudit.psu.edu/>) – **814-865-9596**
- [Clery Act Compliance Manager](http://www.police.psu.edu/clery/) (<http://www.police.psu.edu/clery/>) – **814-863-1273**
- [Your campus, college, or unit’s Human Resources Strategic Partner](http://ohr.psu.edu/content/hr-strategic-partner-and-consultant-directory) (<http://ohr.psu.edu/content/hr-strategic-partner-and-consultant-directory>)

TRAINING

Training for employees is available on many of the above topics through the [Office of Human Resources’ Learning Resource Network](http://lrn.psu.edu) (<http://lrn.psu.edu>) and the Affirmative Action Office at **814-863-0471**