

SUNY Geneseo, Department of Physics and Astronomy
PHYS 103: The Science of Sound Laboratory
Syllabus, Fall 2021

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Course Websites: <https://www.geneseo.edu/~mclean/SoundLab/> and in [Canvas](#).

Learning Outcomes:

1. (*Nat. Sci. Gen. Ed.*) Demonstrate knowledge of the following aspects of the scientific method: scientific observation, hypothesis development, data gathering and analysis, evaluation of evidence.
2. (*Nat. Sci. Gen. Ed.*) Demonstrate understanding of and ability to apply scientific data, method, and models germane to [physics], ...
3. (*This course*) ... specifically: units related to sound, and Fourier analysis.
4. (*This course*) Demonstrate understanding of some of the physical workings of sound production (musical instruments, loudspeakers), and sound detection (microphones), and sound propagation.

Times and places:

Labs: ISC 215 (old Greene), two sections each meet for 2 hrs Wed or Thu
Final: no Final Exam for lab courses

Office hours:

Dr. McLean: Tue 1:30–3:30PM, Thu 9:00–11:00AM, Fri 2:00–4:00PM

During these times, available for office walk-ins, office phone, or Zoom link (available on the schedule page of my web site).

I am also available at other times; see the schedule on my web site. Just stop by my office, or contact me by phone or email.

There are some questions that can only be answered by your instructor. But I am available to provide some help to students from all sections.

Other Instructor: 1 – 2 hours each week, TBA on the course Canvas Home page.

Required materials:

Lab Manual: by McLean, published online through XanEdu FlexEd, accessible through Canvas
Laptop Computer with charger, and with Microsoft Excel installed (non-cloud version)
If pandemic requires low density classes, Smartphone with charger, earbuds recommended

Required coursework (with fraction of final course grade):

Participation: All 12 labs must be completed to pass this course. If you miss a lab session, you **must** make up the lab. If your reason for missing is not valid, then the maximum credit for that lab will be 75%. See the beginning of the lab manual for details.

20% Laboratory Task: For 2½ labs, full credit given for completing the required tasks.

75% Excel Logbook: For 9½ labs, credit is based on completeness and accuracy of your logbook, usually prepared in teams of two students.

5% Pre-lab Quizzes: Posted in FlexEd each week, due one hour before lab.

Course Structure:

In preparation for labs, all students will study a Lab Manual and sometimes view short pre-lab videos. For all weeks except the first, there will be a pre-lab Quiz delivered through FlexEd.

Each lab partnership will work collaboratively to perform each lab. Each lab partnership will prepare a single “logbook” spreadsheet, collaborating via Excel OneDrive.

General Comments:

Final course grades will reflect adjustments for variations in grading among different sections.

During the semester it’s only possible to get a rough idea of how you are doing.

If you must miss a lab session for a college-sanctioned reason, contact *Dr. McLean* **as far ahead as possible**. Hopefully, you can attend another lab session for that one week.

If you miss a lab session with no prior plan, you may ask *the instructor of later session* in the same week whether you can attend. This may not be possible, due to class size limitations.

Otherwise, contact *your regular lab instructor* to arrange a makeup.

Materials provided for this course are intended for the sole use of registered students. Sharing of course materials outside that audience, including uploading to websites open to the general public (with or without a subscription or membership) is strictly prohibited.

Help available:

Labs are intended to be completed within the scheduled class time. However, a variety of factors, including your own preparedness, may prevent this from happening. At times when you need to complete work afterwards, you may need additional help.

- **CIT** provides a range of technology support resources. In Canvas, the Help menu on the left side of the screen will direct you to a number of CIT supports.
- Your lab instructor has regular office hours.
- Dr. McLean has regular office hours, and is happy to meet with you at other times as well.
- The Provost has prepared a reference page for [Student Success Resources](#).
- SUNY Geneseo is dedicated to providing an equitable and inclusive educational experience for all students. The Office of Accessibility will coordinate reasonable accommodations for persons with physical, emotional, or cognitive disabilities to ensure equal access to academic programs, activities, and services at Geneseo. Students with letters of accommodation should submit a letter to each faculty member and discuss their needs at the beginning of each semester. Please contact the [Office of Accessibility Services](#) for questions related to access and accommodations: (585) 245-5112, access@geneseo.edu .

Schedule

WEEK OF...	LAB
Sep. 1	1. Speed of Sound
8	...continuing 1
15	2. Uncertainty & Graphing
22	3. SHM & DHM
29	4. Hooke's Law & SHM
Oct. 6	5. Signals
13	6. Loudness Measurements
20	7. Complex Signals
27	8. Ripple Tanks
Nov. 3	9. Audio System Response
10	(NO LAB)
17	10. Waves on a String
24	(NO LAB)
1	11. Waves in a Tube
Dec. 8	12. Tube Resonances
15	(NO LAB)