

The Physics of Sound & Music Lab (Fall 2019)

The Combination *PHYS 102/122* has no prerequisites.

You can use this combination as a lab science or science perspective. Pick One.

Instructor: Michael J. Ruiz, Ph.D.; Lab meets in Rhoades/Robinson Hall, Room RRO 114.

Lab Assignments: Online.

NOTE: The free browser Google Chrome is needed for all apps to word properly.

L1 - T (9:55-11:10), **L2** - W (9:30-10:45), **L3** - W (2:00-3:15), **L4** - R (9:55-11:10)

Office Hours: T (11:15-11:45), W (10:45-11:45), W (1:00-2:00), R (11:15-11:45) until Dec 3.
Look for me in either our lab RRO-114 or in my office RRO-124D. ruiz@unca.edu

Lab Schedule: There are 10 labs posted online. Don't hesitate to ask for help in lab.

- Monday: Begins the lab week. Try to finish a few questions before coming to lab.
- After the lab period, complete any remaining questions by that Friday.
- Friday 11:59 pm is the deadline to complete the assigned lab for that week.
- You are on your own if you work beyond Thursday noon. Your internet could go down. But there will be at least one Grace Period near the end of the semester for make-up work.

Exam Schedule: There are two Lab Exams. One is the Midterm and the other is the Final.

- Exam 1 - Midterm Exam covers Labs 1, 2, 3, 4, and 5. See Calendar on next page.
- Exam 2 - Final Exam covers Labs 6, 7, 8, 9, and 10. Final Exam Week.

Attendance: You receive attendance points for working on lab assignments during the lab period. Attendance and consistent lab work are important for borderline cases.

Holidays, Special Events, Cancellation of Classes Due to Weather. Since our labs are online, the schedule continues as posted. For bad weather, do the lab as a take-home lab.

Official University Travel: Let me know if you need to miss lab due to official university travel at least one week in advance. Since the lab work is online, you will finish the lab ahead of time.

Time: Total time for a science lab ranges among the science departments from 2 hours to 4 hours. Allocate for yourself 1.5 hours in addition to your 75-minute lab period for some work on your own. You might not need all of it. See me if you are taking over 3 hours to complete a lab.

Grading: A (740-800), B(660-739), C(580-659), D(500-579), F(0-499).

250 Points for Lab Assignments (25 assignments per lab, 10 labs: $10 \times 25 = 250$)

100 Threshold (10 per Lab if 18 completed). **But do all 25 for full credit to get 350.**

50 L01-L10 Attendance (5 for on time, 3 for late, 0 if more than half the class is missed)

200 Exam 1

200 Exam 2

800 Total

Borderline cases (within reason) are determined by me based on your lab attendance grade and completing labs.

Goals of lab include making measurements, analyzing data, and drawing conclusions. You will learn about the important observational aspects of science. You will also see the power of physics in a variety of interdisciplinary applications such as harmonics, hearing, and music.

Week Beginning	Lab Title	Online Due Date
August 19, 2019	L01. Measurement	Friday, August 23, 2019
August 26, 2019	L02. Waves	Friday, August 30, 2019
September 2, 2019	L03. The Oscilloscope	Friday, September 6, 2019
September 9, 2019	L04. Modulation	Friday, September 13, 2019
September 16, 2019	L05. The Just Diatonic Scale	Friday, September 20, 2019
September 23, 2019	<i>PHYS 102 Exam 1 aka E1 (A-G)</i>	No Lab Due.
September 30, 2019	L06. Harmonics	October 4, 2019
October 7, 2019	<i>Lab Midterm Exam aka LE1</i>	Covers Labs 1, 2, 3, 4, and 5
October 14, 2019	No Tuesday Lab (Fall Break). Wednesday and Thursday Labs meet to get ahead because they will not meet the last week of class.	No Lab Due.
October 21, 2019	<i>PHYS 102 Exam 2 aka E2 (H-N)</i>	No Lab Due.
October 28, 2019	L07. Fourier Synthesis	Friday, November 1, 2019
November 4, 2019	L08. Digital Electronics	Friday, November 8, 2019
November 11, 2019	L09. Spectrograms	Friday, November 15, 2019
November 18, 2019	<i>PHYS 102 Exam 3 aka E3 (O-U)</i>	No Lab Due.
November 25, 2019	Symposium and Thanksgiving	No Lab Due.
December 2, 2019	Lab 10. Living Creature Sounds	Wednesday, December 4

Final Exam Schedule – Lab Exam 2 (LE2) Covers Labs 6, 7, 8, 9, and 10

Lab Section 1 - Tuesday, December 10, 2019	from 8:00 to 9:30 am
Lab Section 2 - Monday, December 9, 2019	from 8:00 to 9:30 am
Lab Section 3 - Wednesday, December 11, 2019	from 11:30 am to 1:00 pm
Lab Section 4 - Tuesday, December 10, 2019	from 9:30 to 11:00 am

Course Website: <http://www.uncasound.com>
Bookmark the Exact Address: <http://www.opus.unca.edu/sound/>

For adverse weather consult your email, the UNCA Home Page, or the radio.

