

University of Florida
College of Public Health & Health Professions Syllabus
SPA 3011: Speech Acoustics (3 credits)
 Semester: Fall 2023
 DL and Campus

Instructor:**Sharon M. DiFino, PhD, CCC-SLP**

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Office Hours: Virtual and by appointment

Preferred course communication method: E-mail

Course Information

Course web site is the UF E-Learning (Canvas) page: <http://elearning.ufl.edu>

1. Campus Sections will meet during the scheduled period(s) for that section listed in One.UF.
2. DL Sections will schedule "Chat" via Zoom based on TA, Faculty, and student availability set at the beginning of the semester.

Course Overview/Purpose

The purpose of this course is to provide students with an understanding of the basic principles underlying the production of the speech acoustic signal. It introduces scientific methodologies, physics of sound, acoustics and elementary instrumentation related to human speech communication.

Relation to Program Outcomes and Clinical Certification Standards: *This course addresses program outcomes that pertain to the following Clinical Certification:*

Standard IV-A: Knowledge of physical science and social/behavioral science as they relate to acoustics of speech production and perception.

Standard IV-B: Knowledge of acoustic phonetic aspects of basic human communication processes.

Course Objectives/Goals***Students will be able to:***

1. (Analysis) Analyze the acoustics of speech production and perception using the appropriate physical science and social/behavioral science frameworks.
 - a. (Application) Connect the characteristics of speech production and perception to the appropriate physical laws
 - i. (Comprehension) Illustrate Newton's 3 laws of motion.
 - ii. (Comprehension) Explain Boyle's law
 - iii. (Comprehension) Summarize the role of the Bernoulli effect in the myoelastic aerodynamic theory
 - iv. (Comprehension) Give examples of the principles of basic acoustics
 - b. (Application) Calculate the period, frequency and wavelength of a sound wave
 - i. (Comprehension) Give examples of periodic and nonperiodic sounds
 - c. (Application) Correlate the anatomy and physiology of the human body to the physical production of sound.
 - i. (Comprehension) Summarize the concept of respiratory control
 - ii. (Comprehension) Illustrate the larynx and vocal tract

- iii. (Comprehension) Summarize the functions of the vocal tract as relates to speech production and perception
- 2. (Analysis) Break down the acoustic phonetic aspects of basic human communication processes
 - a. (Application) Classify commonly used techniques to describe and quantify speech
 - i. (Comprehension) Use appropriate units and measures to describe sound
 - ii. (Comprehension) Use appropriate units and measures to describe air pressure and flow
 - b. (Application) Measure the acoustic properties of vowels and consonants.
 - c. (Application) Summarize some of the primary theoretical categories of production and perception
 - i. (Comprehension) Explain the source-filter theory of speech in terms of filters, vibration, resonance, and spectra

Skills Objectives and/or Goals: *Students will be able to:*

- a. Understand and plot waveforms of acoustic and vibrational quantities.
- b. Calculate the period, frequency and wavelength of a sound wave.
- c. Measure the acoustic properties of vowels and consonants.
- d. Identify the principles of basic acoustics, including wave motion and resonance.

Instructional Methods

Blended Learning:

What is blended learning and why is it important?

A Blended Learning class uses a mixture of technology and face-to-face instruction to help you maximize your learning. Knowledge content that, as the instructor, I would have traditionally presented during a live class lecture is instead provided online before the live class takes place. This lets me focus my face-to-face teaching on course activities designed to help you strengthen higher order thinking skills such as critical thinking, problem solving, and collaboration. Competency in these skills is critical for today's health professional. In the campus sections this means we will meet in class each week. In the online section this means we will meet in Zoom chats prior to assessments.

What is expected of you?

You are expected to actively engage in the course throughout the semester. You must come to class prepared by watching pre-recorded lectures, assigned readings, and all out-of-class assignments. This preparation gives you the knowledge or practice needed to engage in higher levels of learning during the live class sessions. If you are not prepared for the face-to-face sessions, you may struggle to keep pace with the activities occurring in the live sessions, and it is unlikely that you will reach the higher learning goals of the course. Similarly, you are expected to actively participate in the live class. Your participation fosters a rich course experience for you and your peers that facilitates overall mastery of the course objectives.

Instructional methods used in this course include videos of traditional lecture style via zoom in Canvas, case-based learning, clinical simulations, online discussions, and guest speaker(s). Quizzes and assignments provide practice and knowledge and skills development checks. Exams provide additional assessment of knowledge and skills. In addition to Canvas, students will use Packback for discussions and assignments (see details in syllabus schedule).

Lecture and learning activities will be live and synchronous during regularly scheduled times. Our class sessions may be audio visually recorded for students in the class to refer back to if necessary. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image

recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.

“Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A “class lecture” is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture **does not** include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To “publish” means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.”

Weekly Organization (For DL Students)

- Please complete the readings and view the recorded presentations by Thursday in order to complete Packback assignment due Sunday, 11:59PM.
- Attend online zoom chat session to be determined and posted in Canvas.
 - Virtual office hours: scheduling a one-on-one appointment.
 - You can schedule a one-on-one appointment via email with me or my TA for questions.
- **For ALL Students:** Ongoing assessment items (alternating weeks):
 - Quizzes will be open from Friday 5:00 pm ET to Sunday 11:59 pm ET as assigned
 - Packback Assignments will be due by 11:59 pm ET on Sundays
 - Exams will be open for 48 hours (see syllabus for details)

Class Schedule (Please note the dates listed are week of. Please note class schedule is subject to change. Changes will be announced.)

Week:	Topic:	Readings: (Behrman)	Complete Readings & Modules: Week of	Assignment/ Quiz
1	Introduction and Overview	Ch. 1 and 2	8/23 (classes start)	
2	Motion & Sound Waves Part 1	Ch. 2 and 3	8/28	(PB assignment #1 Sunday 9/3 due)
3	Sound Waves Part 2	Ch. 3	9/4	Quiz 1
4	Sound Waves Part 3 & Breathing	Ch. 3 and 4	9/11	

Week:	Topic:	Readings: (Behrman)	Complete Readings & Modules: Week of	Assignment/ Quiz
	Part 1			
5	Breathing Part 2 & Phonation Part 1	Ch. 4 and 5	9/18	Quiz 2
6	Phonation Part 2 & Phonation Part 3	Ch. 5 and 6	9/25	
7	Phonation Part 4 & Vowels Part 1	Ch. 6 and 7	10/2	Exam 1
8	Vowels Part 2	Ch. 7	10/9	
9	Vowels Part 3	Ch. 7	10/16	Quiz 3
10	Consonants Part 1 & Part 2	Ch. 8	10/23	
11	Theories and Models of Speech Production & Theories of Speech Perception Part 1	Ch. 10 and 11	10/30	Quiz 4
12	Post your Group Presentation		11/6	Project; Virtual Exchange
13	Theories and Models of Speech Production & Theories of Speech Perception Part 2	Ch. 10 and 11	11/13	Virtual Exchange
14	Instrumentation Part 1 & 2	Ch. 12	11/20	Virtual Exchange
15	Exam 2		11/27	Exam 2
16	Wrap up of the semester		12/4	

Course Materials and Technology

Recommended Text:

Behrman, A. *Speech and Voice Science*, 4th edition. Plural Publishing, 2021.

Required

Packback details provided in class.

Technical Support

For technical support for this class, please contact the UF Help Desk at:

Learning-support@ufl.edu

(352) 392-HELP - select option 2

<https://lss.at.ufl.edu/help.shtml>

Grading Policy

Exams:

There will be 2 exams that will test knowledge of presented information as well as synthesis and application of this information in novel situations. These will also be administered through Canvas, equal 24% of your grade and be administered using LockDown Browser for campus and Honorlock for DL sections. See schedule for these exams.

Quizzes:

There will be 4 quizzes throughout the semester. All quizzes will be administered through Canvas and be administered using LockDown Browser. They equal 40% of the total grade.

- Quizzes will be open from Friday 5:00 pm ET to Saturday 11:59 pm ET as assigned

Professionalism

At the end of the semester you will receive up to 5% of your grade based on your conduct, professional interaction and effort in the course.

For this course, professionalism is defined as a scholarly curiosity that drives you to prepare yourself thoroughly before engaging in discussions with your peers. It includes submitting work on time, cooperating as well as collaborating with your peers, faculty, and teaching assistant in a scholarly and professional manner.

Packback Questions

Participation is a requirement for this course, and the Packback Questions platform will be used for online discussion about class topics. Packback Questions is an online community where you can be fearlessly curious and ask open-ended questions to build on top of what we are covering in class and relate topics to real-world applications.

Packback Requirements:

Your participation on Packback will count toward 15% of your overall course grade.

There will be a Weekly Sunday at 11:59PM EST deadline for submissions. In order to receive full credit, you should submit the following per each deadline period:

I 1 open-ended Question every week with a minimum Curiosity Score of 50, worth 33.33% of each assignment grade

I 2 Responses every week with a minimum Curiosity Score of 50, worth 66.67% of each assignment grade

I Half credit will be provided for questions and responses that do not meet the minimum curiosity score.

How to Register on Packback:

Note: Only access Packback through **Canvas** in order to ensure your grades sync properly

1. Click the Packback assignment link within **Canvas** to access the community
2. Follow the instructions on your screen to finish your registration.
3. **In order for your grade to be visible in Canvas**, make sure to click each Packback assignment link as you post your Packback submissions.

Packback requires a paid subscription. Refer to www.packback.co/product/pricing for more information.

How to Get Help from the Packback Team:

If you have any questions or concerns about Packback throughout the semester, please read their FAQ at help.packback.co. If you need more help, contact their customer support team directly at help@packback.co.

For a brief introduction to Packback Questions and why we are using it in class, watch this video:

<https://www.youtube.com/watch?v=OV7QmikrD68>

Group Project:

You will be divided into small groups of up to 4 students to create a presentation researching a specific topic on Speech Acoustics. Topics will be posted in Canvas see syllabus schedule. Throughout the fall semester you will be expected to research the topic, create a PPT presentation that you will present either via zoom or PPT with voice over as a group and upload in Canvas. You will be expected to work together as a cohesive

group in creating your presentation. Details for the group presentation will be posted in Canvas. The group projects are worth 10% of your total grade.

Virtual Exchange

There is an opportunity for our class to engage in a Virtual Exchange (VE) with ITESO in Mexico. We will be engaging with 4 activities related to the VE. More information about these will be posted in Canvas as we develop the VE. If for any reason we are unable to engage in the VE with ITESO, our class we still complete the related activities and you will still obtain a grade for this assignment.

Extra Credit:

"Optional extra credit assignment: Students who wish to do so may increase their total grade points by 2 (out of 100) by participating 2 hours in psycholinguistic experiments through the LIN/S&P/SLHS participant pool. **Deadline is November 30th)].** A list of experiments can be found

at: <https://slhs.php.ufl.edu/category/participant-pool/>. This site will be updated throughout the semester.

Please retain the IRB form with the original signature from the experimenter (no photocopies) as proof that you participated. Experiments that you have previously participated in, experiments that you count towards other classes, or experiments you were paid to participate in *cannot* count toward this. If you choose not to participate or do not qualify for any of the studies, you can receive the same amount of course credit by means of an alternative assignment. This involves writing a synopsis of a short research article, video, or a podcast. Details will be made available by the instructor."

<i>Requirement</i>	<i>Percentage of Overall Grade</i>
<i>2 Exams</i>	<i>24%</i>
<i>4 Quizzes</i>	<i>40%</i>
<i>1 Final Group Project</i>	<i>10%</i>
<i>Virtual Exchange</i>	<i>6%</i>
<i>Professionalism</i>	<i>5%</i>
<i>Packback</i>	<i>15%</i>
Total:	100%

Letter Grade	A	A-	B+	B	B-	C+	C	D+	D	D-	E
Percentage	93-100	90-93	87-90	83-87	80-82	77-80	70-77	67-69.9	63-67	60-62	<60
Grade points	4.0	3.67	3.33	3.0	2.67	2.33	2.0	1.33	1.0	0.67	0.0

For detail on the meaning of letter grades and university policies related to them, see the Registrar's Grade Policy regulations:

<http://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Exam Policy

Policy Related to Make up Exams or Other Work

Please note: Any requests for make-ups due to technical issues **MUST** be accompanied by the ticket number received from LSS when the problem was reported to them. The ticket number will document the time and date of the problem. You **MUST** e-mail me within 24 hours of the technical difficulty if you wish to request a make-up.

Policy Related to Required Class Attendance

Students in campus based classes are expected to attend and actively participate in class activities and discussions. Exam questions are taken mainly from the material from lectures and students will be responsible for this material.

For information regarding the UF Attendance Policy see the Registrar website for additional details:
<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

STUDENT EXPECTATIONS, ROLES, AND OPPORTUNITIES FOR INPUT

Expectations Regarding Course Behavior

Etiquette and Professionalism

All members of the class are expected to follow rules of common courtesy in all email messages, class discussions and activities. You are expected to arrive on time and to participate any time you attend. Your engagement in class activities will be factored into the appraisal of your professionalism.

Academic Integrity

Students are expected to act in accordance with the University of Florida policy on academic integrity. As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge:

“We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.”

You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied:

“On my honor, I have neither given nor received unauthorized aid in doing this assignment.”

It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For additional information regarding Academic Integrity, please see Student Conduct and Honor Code or the Graduate Student Website for additional details: <https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/> <http://gradschool.ufl.edu/students/introduction.html>

Please remember cheating, lying, misrepresentation, or plagiarism in any form is unacceptable and inexcusable behavior.

Professionalism

As students pursuing a path in the health professions or public health, it is crucial to demonstrate professional behaviors that reflect integrity and commitment to the health of patients, fellow health professionals, and to populations we serve. To accomplish this, a strong responsibility for the well-being of others must be evident in our decisions, along with accountability for our actions. Professionalism in the health disciplines requires adherence to high standards of conduct that begin long before graduation.

Online Faculty Course Evaluation Process

Students are expected to provide feedback on the quality of instruction in this course by completing online [Faculty Course Evaluations](#). Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. [Summary Results](#) of these assessments are available to students.

Guests attending class: Only registered students are permitted to attend class. However, we recognize that students who are caretakers may face occasional unexpected challenges creating attendance barriers. Therefore, by exception, a department chair or his or her designee (e.g., instructors) may grant a student permission to bring a guest(s) for a total of two class sessions per semester. This is two sessions total across all courses. No further extensions will be granted. Please note that guests are **not** permitted to attend either cadaver or wet labs. Students are responsible for course material regardless of attendance. For additional information, please request the Classroom Guests of Students policy in its entirety.

SUPPORT SERVICES

Accommodations for Students with Disabilities

If you require classroom accommodation because of a disability, you must register with the [Dean of Students Office Disability Resource Center](#) (DRC) within the first week of class. The DRC will provide documentation of accommodations to you, which you then give to me as the instructor of the course to receive accommodations. Please make sure you provide this letter to me by the end of the second week of the course. The College is committed to providing reasonable accommodations to assist students in their coursework.

Counseling and Student Health

Students sometimes experience stress from academic expectations and/or personal and interpersonal issues that may interfere with their academic performance. If you find yourself facing issues that have the potential to or are already negatively affecting your coursework, you are encouraged to talk with an instructor and/or seek help through University resources available to you.

[The Counseling and Wellness Center](#) (352-392-1575) offers a variety of support services such as psychological assessment and intervention and assistance for math and test anxiety. Online and in person assistance is available.

If you are feeling overwhelmed or stressed, you can reach out for help through the [You Matter We Care](#) website, which is staffed by Dean of Students and Counseling Center personnel.

The Student Health Care Center at Shands is a satellite clinic of the main Student Health Care Center located on Fletcher Drive on campus. Student Health at Shands offers a variety of clinical services. The clinic is located on the second floor of the Dental Tower in the Health Science Center. For more information, contact the clinic at 392-0627 or check out the [Student Health Care Center](#) website.

Crisis intervention is always available 24/7 from the [Alachua County Crisis Center](#) at (352) 264-6789.

Do not wait until you reach a crisis to come in and talk with us. We have helped many students through stressful situations impacting their academic performance. You are not alone so do not be afraid to ask for assistance.

INCLUSIVE LEARNING ENVIRONMENT

Public health and health professions are based on belief in human dignity and on respect for the individual. As we share our personal beliefs inside or outside of the classroom, it is always with the understanding that we value and respect diversity of background, experience, and opinion, where every individual feels valued. We believe in, and promote, openness and tolerance of differences in ethnicity and culture, and we respect differing personal, spiritual, religious and political values. We further believe that celebrating such diversity

enriches the quality of the educational experiences we provide our students and enhances our own personal and professional relationships. We embrace the University of Florida's Non-Discrimination Policy, which reads:

“The University shall actively promote equal opportunity policies and practices conforming to laws against discrimination. The University is committed to non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, gender identity and expression, marital status, national origin, political opinions or affiliations, genetic information and veteran status as protected under the Vietnam Era Veterans’ Readjustment Assistance Act.”

If you have questions or concerns about your rights and responsibilities for inclusive learning environment, please see your instructor or refer to the [Office of Multicultural & Diversity Affairs](#) website.