



**College of Public Health & Health Professions Syllabus**  
**SPA 3032 Fundamentals of Hearing (3hours)**  
**Section Fall Semester 2021**  
Delivery Format: Blended Learning

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### **PURPOSE AND OUTCOME Course Overview**

This course is designed to introduce students who are interested in pursuing careers in fields related to human communication to sound and auditory perception. The course is organized around three major topic areas:

- 1) Sound: How it is generated, propagated, and described
- 2) Structure and function of the human auditory system
- 3) Perceptual processes involving nonspeech and speech signals

### **Course Objectives:**

At the end of this course, students will be able to:

- Explain how nonspeech and speech signals are generated and propagated
- Analyze and describe acoustic waveforms and spectrograms
- Compute or derive measurements of amplitude, frequency, phase, and time for acoustic signals
- Describe structures and functions of the human auditory system from the pinna to the cortex
- Explain the role that complex auditory functions had in the evolution of language for the species and have in the development of language for the individual
- Explain categorical speech perception
- Evaluate research reports and critically assess quality of the science presented in those reports
- Write a review of a research report with correct formatting and appropriate structure

### **Instructional Method: Lectures, readings**

This course will use **blended learning**, which is a composite of face-to-face meetings and recorded lectures. The recorded lectures provide the student with the opportunity to review the material at the rate and with the repetition that matches individual learning needs. Each student is responsible for interacting with the course content to the extent required to reach mastery. Instructional staff are available to support student learning, as requested.

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### **DESCRIPTION OF COURSE CONTENT**

#### **Required Textbook:**

Fundamentals of Hearing: An Introduction, 5<sup>th</sup> Edition. William A. Yost. Publisher: Brill.

<p><b>#1 What is sound; Introduction to logs</b></p> <p><i>Assignments: Read chapters 1 and 2; get calculator with a log function</i></p> <p>M 8/23: Review course syllabus, course requirements</p> <p>W 8/25: Introduce logs</p> <p>F 8/27: AT HOME Recorded lecture on why we study hearing</p>
<p><b>#2 Simple harmonic motion; logs &amp; decibels</b></p> <p><i>Assignments: Read Chapter 3 and Appendix B; do log/decibel exercise</i></p> <p>M 8/30: Introduce decibels and simple harmonic motion</p> <p>W 9/01: AT HOME Recorded lecture on simple harmonic motion</p> <p>F 9/03: AT HOME Recorded lecture on logarithms and decibels/complete exercise</p>
<p><b>#3 Sound propagation and impedance</b></p> <p><i>Assignments: Review material, practice log &amp; decibel calculations, 2 at-home lectures</i></p> <p>M 9/06: HOLIDAY – NO CLASS</p> <p>W 9/08: Lecture on sound propagation</p> <p>F 9/10: AT HOME 2 lectures on sound propagation, impedance and reflectance</p>
<p><b>#4 Introduction to complex sounds</b></p> <p><i>Assignments: Study for exam</i></p> <p>M 9/13: In class review</p> <p><b>W 9/15: Exam #1 on Chapters 1-3 and logs/dB (150 points)</b></p> <p>F 9/17: AT HOME Recorded lecture on complex sounds</p>
<p><b>#5 Complex sounds, noise, and filters</b></p> <p><i>Assignments: Read Chapters 4 and 5</i></p> <p>M 9/20: Lecture about complex sounds</p> <p>W 9/22: AT HOME Recorded lecture about more on complex sounds</p> <p>F 9/24: AT HOME Lecture about noise and filters</p>
<p><b>#6 Sound analysis for speech</b></p> <p><i>Assignments: Study for exam</i></p> <p>M 9/27: In class review</p> <p>W 9/29: AT HOME Lecture on sound analysis for speech</p> <p><b>F 10/01: Exam #2 on Chapters 4-5 (150 points)</b></p>
<p><b>#7 Structures of outer to inner ear</b></p> <p><i>Assignments: Read Chapters 6 and 7</i></p> <p>M 10/04: AT HOME Lecture on outer and middle ear Read Chapters 6 and 7</p> <p>W 10/06: Lecture on inner ear structures</p> <p>F 10/08: HOLIDAY – NO CLASS</p>
<p><b>#8 Inner ear to brainstem</b></p> <p><i>Assignments: Read Chapter 8</i></p> <p>M 10/11: Lecture on inner ear functions</p> <p>W 10/13: AT HOME Lecture on the auditory nerve</p>

F 10/15: Lecture on the auditory brainstem
<p><i>#9 Sound processing</i></p> <p><i>Assignments: Read Chapter 9</i></p> <p>M 10/18: AT HOME Lecture on the Cortical Representation of Sound</p> <p>W 10/20: AT HOME Lecture on sound processing and representation</p> <p>F 10/22: In class review</p>
<p><i>#10 Introduction to reading research and psychophysical methods</i></p> <p><i>Assignments: Study for exam</i></p> <p><b>M 10/25: Exam #3 on Chapters 6-9 (200 points)</b></p> <p>W 10/27: Lecture on how to review a research paper</p> <p>F 10/29: AT HOME Lecture on psychophysical methods</p>
<p><i>#11 Loudness and pitch perception; research paper</i></p> <p><i>Assignments: Read the selected research paper and Chapters 10 and 13</i></p> <p>M 11/01: AT HOME Lecture on loudness perception</p> <p>W 11/03: Review our research paper</p> <p>F 11/05: AT HOME Lecture on pitch perception</p>
<p><i>#12 Binaural processes, localization, and categorical perception</i></p> <p><i>Assignments: Read Chapter 12</i></p> <p>M 11/08: AT HOME Lecture on binaural processes and localization Read Chapter 12</p> <p>W 11/10: In class review</p> <p>F 11/12: AT HOME Lecture on categorical perception</p>
<p><i>#13 More on categorical perception, infant speech perception</i></p> <p><i>Assignments: Work on review paper</i></p> <p>M 11/15: Review of categorial perception</p> <p>W 11/17: Lecture on infant speech perception</p> <p>F 11/19: Work on paper</p>
<p><i>#14 Thanksgiving</i></p> <p><i>Assignments: eat turkey and pumpkin pie</i></p> <p><b>M 11/22: paper due by midnight (200 points)</b></p> <p>W 11/24: HOLIDAY – NO CLASS</p> <p>F 11/26: HOLIDAY – NO CLASS</p>
<p><i>#15 Developmental speech perception</i></p> <p><i>Assignments: Study for exam</i></p> <p>M 11/29: Lecture on developmental speech perception</p> <p>W 12/01: In class review</p> <p><b>F 12/03: Exam #4 on Chapters 10, 12, and 13 (200 points)</b></p>
<p><i>#16 More on hearing and spoken language</i></p> <p><i>Assignment: Write an essay between 600 and 1,000 words on why hearing is important to your career goals</i></p>

M 12/06: Spoken language and deaf children

W 12/08: Essay due by midnight (100 points)

## ACADEMIC REQUIREMENTS AND GRADING

### Assignments

1. Lectures: This is a hybrid course. Some lectures will be in person and some will be online. The student is responsible for watching all lectures and taking notes. The student is responsible for communicating with the instructional staff when there is a problem with comprehension.
2. Reading: The student is responsible for reading all assigned material. Test questions can be asked on any material from assigned chapters.
3. Computational practice: The student is responsible for completing all assigned practices and checking answers against answer sheets provided. Similar problems will be found on tests.
4. Written Papers: The journal article review will count for 20% of the student's grade. The journal article to be reviewed will be assigned. A guide for the review paper is provided in the Assignments section of Canvas, as well as a scoring rubric. An essay on how this course will help your career objectives will count for 10% of the student's grade.

Thus, grades will consist of:

70%: Four exams, two will be worth 150 points each; two will be worth 200 points each

20%: Review Paper

10%: Essay

### Grading

Letter Grade	A	A-	B+	B	B-	C+	C	D+	D	D-	F
Percentage	93-100%	90-92%	87-89%	83-86%	80-82%	77-79%	70-76%	67-69%	63-66%	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

Grades of *WF*, *I*, *NG*, and *S-U* each correspond with 0.0 grade points. For greater detail on the meaning of letter grades and university policies related to them, see the Registrar's Grade Policy regulations at:

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

### Policy Related to Required Class Attendance

Attendance is required. Personal issues regarding attendance or fulfillment of course requirements are to be submitted in writing and will be dealt with on an individual basis. If you fail to register your absence with the instructor additional time will not be provided for the completion of the paper assignments.

### Policy Related to Exams

Exams must be taken at the scheduled time on the scheduled days. Failure to complete exams on time will result in a zero grade.

## STUDENT EXPECTATIONS, ROLES, AND OPPORTUNITIES FOR INPUT

### Expectations Regarding Course Behavior and Communication Guidelines

You are expected to attend class and participate. Each class member has a different perspective and sharing provides a more meaningful exchange of ideas and interest. As a professional you will often be required to voice your opinion and perspective. Be respectful to the ideas of peers or the instructor if they differ from your own beliefs or experiences.

### **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.

### **Online Faculty Course Evaluation Process**

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu>. 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 at <https://evaluations.ufl.edu/results/>.

## **SUPPORT SERVICES Accommodations for Students with Disabilities**

If you require classroom accommodation because of a disability, it is strongly recommended you register with the [Disability Resource Center](#) within the first week of class or as soon as you believe you might be eligible for accommodations. The Disability Resource Center will provide documentation of accommodations to you, which you must then give to me as the instructor of the course to receive accommodations. Please do this as soon as possible after you receive the letter. Students with disabilities should follow this procedure as early as possible in the semester. 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 me 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. Visit their web site for more information: <http://www.counseling.ufl.edu>. On line 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. You Matter We Care website: <http://www.umatter.ufl.edu>.
- 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 web site at: <https://shcc.ufl.edu/>
- Crisis intervention is always available 24/7 from:  
Alachua County Crisis Center:  
(352) 264-6789  
<http://www.alachuacounty.us/DEPTS/CSS/CRISISCENTER/Pages/CrisisCenter.aspx>

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 the 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 NonDiscrimination 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: [www.multicultural.ufl.edu](http://www.multicultural.ufl.edu)

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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.

## Special Covid Statement

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. This is particularly true during times of health emergencies such as the COVID pandemic, given our professional habits can have a direct impact upon the health of persons entrusted to us.

If you are not vaccinated, get vaccinated. Vaccines are readily available at no cost and have been demonstrated to be safe and effective against the COVID-19 virus. Visit this link for details on where to get your shot, including options that do not require an appointment:

<https://coronavirus.ufhealth.org/vaccinations/vaccine-availability/>. Students who receive the first dose of the vaccine somewhere off-campus and/or outside of Gainesville can still receive their second dose on campus.

In response to COVID-19, the following professional practices are in place to maintain your learning environment, to enhance the safety of our in-classroom interactions, and to protect the health and safety of ourselves, our patients, our neighbors, and our loved ones.

- You are required to wear approved face coverings at all times while in Health Science Center classrooms and within Health Science Center buildings even if you are vaccinated.
- If you are sick, stay home and self-quarantine. Please visit the UF Health Screen, Test & Protect website about next steps, retake the questionnaire and schedule your test for no sooner than 24 hours after your symptoms began. Please call your primary care provider if you are ill and need immediate care or the UF Student Health Care Center at 352-392-1161 (or email [covid@shcc.ufl.edu](mailto:covid@shcc.ufl.edu)) to be evaluated for testing and to receive further instructions about returning to campus. UF Health Screen, Test & Protect offers guidance when you are sick, have been exposed to someone who has tested positive or have tested positive yourself. Visit the UF Health Screen, Test & Protect website for more information.
- Continue to follow healthy habits, including best practices like frequent hand washing.
- Avoid crowded places (including gatherings/parties with more than 10 people)

Sanitizing supplies are available in the classroom if you wish to wipe down your desks prior to sitting down and at the end of the class. Hand sanitizing stations will be located in every classroom.

Course materials will be provided to you with an excused absence, and you will be given a reasonable amount of time to make up work. If you are withheld from campus by the Department of Health through Screen, Test & Protect you are not permitted to use any on campus facilities. Students attempting to attend campus activities when withheld from campus will be referred to the Dean of Students Office.

Continue to regularly visit [coronavirus.UFHealth.org](https://coronavirus.UFHealth.org) and [coronavirus.ufl.edu](https://coronavirus.ufl.edu) for up-to-date information about COVID-19 and vaccination.

### **COVID-19 Symptoms**

See <https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html> for information about COVID-19 symptoms, which may include fever, cough, shortness of breath or difficulty breathing, fatigue, chills, muscle or body aches, headache, sore throat, congestion or runny nose, nausea or vomiting, diarrhea, and loss of taste or smell.