

University of Florida
College of Public Health & Health Professions Syllabus
SPA 4930: Special Topics – Speech Perception in Phonetics (3 credits)
Semester: Spring 2022
Delivery Format: On-Campus
Course Website

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Office Hours: By appointment

Preferred Course Communications: Email

Recommended Prerequisites: SPA 3003, 3011; 3032 (or permission of instructor)

1 Course Overview

Experimental investigations of speech perception. Topics: measurement of speech movements; source-filter theory of speech production; computer-aided waveform analysis and spectral analysis of speech; perception of speech and non-speech sounds by humans and animals; models for speech motor control and perception; speech development; speech disorders; and recognition of speech by machine.

2 Relation to Program Outcomes

The content of this course is designed to help you meet the following CCC-SLP Standard IV: Knowledge and Skills Outcomes.

Standard IV-A

The applicant must have demonstrated knowledge of the biological sciences, physical sciences, statistics, and the social/behavioral sciences.

Standard IV-B

The applicant must have demonstrated knowledge of basic human communication and swallowing processes, including the appropriate biological, neurological, acoustic, psychological, developmental, and linguistic and cultural bases. The applicant must have demonstrated the ability to integrate information pertaining to normal and abnormal human development across the life span.

¹ Please use Canvas email instead of my UFL email and include “SPA 4930” in the subject line of your messages. I will reply within 48 hours (barring weekends and holidays).

² Feel free to email me with any questions concerning the course content, but you *must* include your current best answer to the question, or what you have tried so far (i.e., help me help you).

Standard IV-C

The applicant must have demonstrated knowledge of communication and swallowing disorders and differences, including the appropriate etiologies, characteristics, anatomical/physiological, acoustic, psychological, developmental, and linguistic and cultural correlates in the following areas: articulation; fluency; voice and resonance, including respiration and phonation; receptive and expressive language (phonology, morphology, syntax, semantics, pragmatics, prelinguistic communication, and paralinguistic communication) in speaking, listening, reading, writing; hearing (including the impact on speech and language); swallowing (oral, pharyngeal, esophageal, and related functions, including oral function for feeding, orofacial myology); cognitive aspects of communication (attention, memory, sequencing, problem solving, executive functioning); social aspects of communication (including challenging behavior, ineffective social skills, and lack of communication opportunities); and augmentative and alternative communication modalities.

The content of this course is designed to help you meet the following CCC-A Standard IV: Knowledge and Skills Outcomes.

Standard IV-A: Foundations of Practice

IV-a4. Normal development of speech and language

IV-a5. Language and speech characteristics and their development across the life span

IV-a7. Effects of hearing loss on communication and educational, vocational, social, and psychological functioning

Standard IV-F: Education/Research/Administration

IV-F2. Applying research findings in the provision of patient care (evidence-based practice)

3 Course Objectives and Goals

The study of normal and disordered speech communication necessitates acquiring a highly integrated understanding of articulation, acoustics, and perception. Building on students' basic knowledge of linguistic-phonetic principles (from SPA 3003), this course provides a more in-depth study of speech perception, current perception models, the neural processing of speech, and the processing of speech versus non-speech signals. The course begins by investigating the nature of the input speech signal, and how listeners interpret properties of that signal (acoustic, visual, haptic) as linguistic information. We will then examine classic experimental work on speech perception and consider contemporary models and theoretical issues that have driven speech perception research over the years. We will also explore aspects of perceptual development and speech impairments.

Throughout, the course will introduce students to a wide range of experimental methodologies and tools for dynamic imaging of speech movements, as well as techniques for assessing perception of the multisensory signal that arises from those movements. Live demonstrations in class with state-of-the-art equipment will provide hands-on training in measuring speech movements and their acoustic correlates. Basic phonetic principles will be

reinforced through student-led seminar presentations, which will provide rigorous conceptual and technical training in articulatory and acoustic analysis, and perceptual testing.

While this course is primarily intended for students pursuing theory-based or therapeutic objectives in the speech and hearing sciences, it will also be appealing to psychology, cognitive science, engineering, and computer science students interested in research on the perception of speech by humans and machines. Students will be able to:

- (1) Describe and explain basic mechanisms involved in the perceptual processing of speech.
- (2) Apply basic knowledge of speech perception to the study of normal and disordered speech physiology and perception.
- (3) Generate hypotheses, interpret data, and actively discuss arguments dealing with speech mechanisms and processes.
- (4) Develop research-evaluation and critique-writing skills.

4 Description of Course Content

Course Schedule

Week	Date(s)	Topic(s)	Readings
The Task of Speech Perception			
1	5-Jan	Course overview and goals	
2	10-Jan	Cracking the speech code; coarticulation & coordination; acoustic structure of speech *remote class – see Canvas for Zoom link	Farnetani & Recasens (2010)
	12-Jan	Acoustic cues and acoustic variation *remote class – see Canvas for Zoom link	Harrington (2010)
3	17-Jan	Experimental interlude I: Using EMA to track speech articulator motion and the resulting acoustic signal	Watch EMA methods video ; Meet in the CAPS Articulation Lab (DG-147) for class
Experimental Studies on Speech Perception and Important Phenomena			
3	19-Jan	Perception of vowels and consonants; Introduction to Praat (acoustic analysis software)	Strange (1999a), Strange (1999b); Download Praat, see Boersma & Weenink (2021)
4	24-Jan	Perception of vowels and consonants, cont.	Diehl <i>et al.</i> (2004), pp. 155-159, Holt (2008)
	26-Jan	Graded, internal structure of phonetic categories	Kuhl (1991); Miller (1994); McMurray <i>et al.</i> (2002)
5	31-Jan	Perception of coarticulated speech	Fowler (1984)

Week	Date(s)	Topic(s)	Readings
The Task of Speech Perception			
	2-Feb	Perception of coarticulated speech, cont.	Diehl <i>et al.</i> (2004), pp. 159-167
6	7-Feb	Experimental interlude II: Using eye-tracking to examine the time course of speech perception	Beddor <i>et al.</i> (2013); Meet in the CAPS Articulation Lab (DG-147) for class
	9-Feb	Multisensory-motor interactions in speech perception	Navarra, Yeung, Werker & Soto-Faraco (2012)
Theoretical Models of Speech Perception			
7	14-Feb	Motor Theory of Speech Perception	Galantucci, Fowler, & Turvey (2006); Masapollo & Guenther (2019)
	16-Feb	Direct Realism *remote class – see Canvas for Zoom link	Fowler (1996); Masapollo <i>et al.</i> (2018)
8	21-Feb	Articulatory Phonology; Accessing primary research sources at UF Library System	Goldstein & Fowler (2003)
	23-Feb	Analysis by Synthesis	Skipper <i>et al.</i> (2007); Kuhl <i>et al.</i> (2014)
9	28-Feb	Quantal Theory; Structuring a research critique	Stevens & Keyser (2010)
	2-Mar	General Auditory Approach	Diehl <i>et al.</i> (2004), pp. 150-155; Holt (2005)
10	7-Mar	Spring break: No class	
	9-Mar	Spring break: No class	
11	14-Mar	Exemplar Theories	Johnson (2006)
	16-Mar	Experimental interlude III: Using XRMB & speech synthesis to examine production-perception relations	Iskarous (2005); Iskarous <i>et al.</i> (2010)
Cross-Linguistic & Developmental Speech Perception			
12	21-Mar	Cross-language speech perception	Miyawaki <i>et al.</i> (1975)
	23-Mar	Cross-language speech perception, cont.	Iverson <i>et al.</i> (2003)
13	28-Mar	Developmental infant speech perception	Kuhl <i>et al.</i> (2008)
	30-Mar	Developmental infant speech perception, cont.	Best <i>et al.</i> (2016); Masapollo <i>et al.</i> (2016)
Neural Substrates of Speech Perception			
14	4-Apr	Neural correlates of speech perception	Myers, Blumstein <i>et al.</i> (2009)
	6-Apr	Neural correlates of speech perception, cont.	Guenther <i>et al.</i> (2004)

Week	Date(s)	Topic(s)	Readings
The Task of Speech Perception			
15	11-Apr	Pulling it all together	
	13-Apr	Feedback on student papers	
16	18-Apr	Feedback on student papers, cont.	
	20-Apr	Reading days: No class	

Course materials and technology: The course has a website on Canvas, which is accessible from: <http://elearning.ufl.edu>. Please make sure you have access. All course material, including the required readings, will be posted on Canvas. *It is your responsibility to monitor the course website on a regular basis.*

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>

Readings:

Required Texts: There are no required textbooks or course packs for this course. Course readings (see above) will be drawn from a number of academic/peer-reviewed sources and posted on the course Canvas site.

Supplemental resources (not required, but recommended as additional resources for students):

Lieberman, A. (1996). *Speech: A Special Code*. MIT Press. Chapter 1 is an engaging introduction to the original questions in, and experimental approaches to, speech perception by one of the founders of the field.

Johnson, K. (2011). *Acoustic and Auditory Phonetics*, 3rd edition. Wiley-Blackwell.
(Available as an [e-book](#) through the UF library system.)

Stevens, K.N. (1998). *Acoustic Phonetics*. MIT Press.
(Available at the UF HSC library.)

Lieberman, P., & Blumstein, S.E. (1988). *Speech Physiology, Speech Perception, and Acoustic Phonetics*. Cambridge University Press.
(Available at the UF HSC library.)

Guenther, F.H. (2016). *Neural Control of Speech*. MIT Press. Chapters 5 and 6 provide a detailed presentation of research on the perception of self-generated speech during ongoing speech production.
(Available as an e-book through the UF library.)

Software:

- [Praat](#) – Multi-platform free-ware for acoustic analysis of speech (Boersma & Weenink, 2013)
- [MATLAB](#) – Matrix calculation software used to run scripts for tracking and measuring speech movements using electromagnetic articulography.

- [R, RStudio](#), multi-platform freeware for data science, graphics, and making dynamic documents.

Other links that may supplement and enrich this course are:

- BU's [collection of historical sound files and videos](#) related to speech production
- USC's [database of MRI movies of real-time speech](#)
- York's [interactive IPA chart](#) with flash animations of the sounds and affiliated symbols
- MIT's [IPA Converter app](#)

5 Phonetics Laboratories

UF's [Department of Speech, Language, and Hearing Sciences](#) has several state-of-the-art [laboratories](#) engaged in multidisciplinary research on speech processes. The CAPS articulation lab houses an [electromagnetic articulography system](#) for speech movement tracking in real time, and various devices for auditory feedback manipulation during ongoing speech production. Our acoustics and perception labs have multiple sound-treated booths, high-quality speech recording equipment, clinical audiometers, and software and hardware for running a wide range of perception experiments. Students are strongly encouraged to participate as subjects in research projects to learn more about how experimental studies are conducted. In addition, SLHS faculty are always interested in competent and detail-oriented students who want to supplement their formal coursework with training in a laboratory environment. Email me to set up a meeting if you are interested in this possibility.

Participate in research at UF for extra credit (optional): To encourage awareness of different aspects of speech and language research, you have the option of participating in two hours of language or communication research during the semester. A list of experiments that qualify for this credit can be found on the web at: <https://slhs.phhp.ufl.edu/research/participant-pool/>. This site will be updated throughout the semester. There are both online and in-person studies available.

A scanned copy of the consent form (if it is really long, the first and last page of the consent form) must be submitted under Assignments/Extra Credit no later than December 8, 2020 for you to receive credit, but they may be turned in earlier. Participating in research will earn you an **extra 2%** added to your course grade.

If you choose not to participate in research or do not qualify for any of the above studies, you can receive the same amount of course credit for reading a short research article and writing a 1.5 - 2-page synopsis and critique of it. Choose any additional article from those posted in the Research Participation Alternatives folder on CANVAS for this purpose. This must be turned in no later than April 20, 2022 for you to receive credit. Guidelines for writing these short papers will be provided in a separate document.

6 Academic Requirements and Grading

Note: *Grading rubrics* will be referred to when giving students feedback on seminar presentations and writing assignments.

Readings and class discussions (10%)

- All readings will be posted on Canvas.
- The sets of readings for each week are to be read *before* class (see schedule below).
- You are expected to actively participate in class discussions (even if you aren't presenting; see below) to show that you have read and critically thought about the content covered in the readings and lectures. This might include sharing your thoughts about the material presented during in-class discussions or posing a question or reflecting on key concepts that you had difficulty with. I will also regularly ask you open-ended questions during class about the material presented in the readings – this will provide you with the opportunity to apply what is being taught, which, in turn, will further your understanding of the topic.

Student Seminar Presentations (60%)

- Students will give four seminar presentations (15% each) throughout the course of the semester. On the first day of class, students will review the syllabus and choose four different weeks to present a designated reading. If there is a week in which no student is signed up to present a given paper, then I will lead that discussion.
- During each seminar, the student presenters are expected to lead the whole class discussion – including providing background for the readings, summarizing the authors' arguments, and providing your own analysis/critique. Note that you are not expected to give a lecture, but rather to stimulate and guide the class discussion.
- Presentations are an opportunity to spend extra time with the readings and practice your communication skills. Actively discussing the material will lead to a greater understanding of the core concepts under study. The seminars are designed to stimulate student interest in exploring the science of speech and develop students' ability to engage in scientific thinking, i.e., generate hypotheses, interpret data, and actively discuss arguments dealing with speech processes. Student will also develop the skills needed to dissect scientific journal articles and evaluate experimental data with a critical eye.
- During your presentations, do not jump between different pieces of the readings, but rather devise a logical view of the topic as a whole in which one part of your presentation leads to the next in smooth connections. Be open to lots of comments and questions from your classmates. Don't be afraid to disagree with a fellow classmate's interpretation of data – students should feel comfortable challenging each other's views.
- Student presenters are required to provide a handout to guide the discussion. The quality of the handout and resulting discussion will be considered in the grading of your presentation. You are allowed to use PPT, but only to present schematic diagrams, figures, or tables. No reading bullet points off slides!
- You are expected to know each week's readings inside and out, even if you are not presenting. Skimming the articles before class is not sufficient. You must come prepared and ready to engage with your classmates – this is what your class participation mark will be based on (see above). It's expected that you won't understand everything in each reading (e.g., statistical analyses, theoretical frameworks) – after all, you are here to learn -- and discussing aspects of the study that were difficult for you to track is encouraged. The best students come to class with notes and ask lots of questions – the whole class often benefits from your questions!

- During your presentations, you need to connect the readings to the class as a whole – the data you present and discuss must be interpreted in terms of the contemporary theories discussed in class. Think big picture – what did we gain from this reading? How did it increase our scientific understanding of human speech perception?
- You are highly encouraged (but not required) to collaborate (in small groups of 2 or 3) on each presentation. This exercise is intended to help students *work in conversation with others to understand complex problems*. You (and your collaborators) should schedule a meeting with me sometime before your presentation to review your plan and receive some guidance. It's probably not a bad idea to practice with your classmates at least once before class (this makes the actual presentation run smoother).

Term paper (30%)

- Students will write a final paper critiquing a series of experimental articles that deal with speech perception. The goal of this assignment is for students to further develop and hone their *deep reading, data analysis, and writing skills* by working in more depth on a topic of particular interest. Guidelines for selecting a topic and writing the paper (basic mechanics, etc.) will be provided in a separate document.
- I will help students search for and locate primary sources for the paper using the University of Florida Library System.
- Each aspect of the writing process (i.e., initial outline, drafts, final version) will be assigned points and graded (see below) to make sure that students recognize the importance of each step. This will also ensure that students have sufficient time to write, reflect, and revise their papers, as opposed to completing all writing during an abbreviated period at the end of the term. Students will meet with me during office visits to receive constructive feedback on all stages of the writing process (i.e., topic selection, outline, drafts, etc.).
- Students will receive and give feedback on each other's drafts during the last two class meetings.
- You should think about and structure the paper in the following way:
 - *Motivation/hypothesis*: State the relevant background so that the reader understands the motivation for the current studies. Why are these studies being conducted; what question does the author want to answer and why is this an important question?
 - *Method*: What methods are used to address the hypothesis?
 - *Results and the authors' interpretation*: The *main* aspects of the results should be described, especially in light of the study's goal / hypothesis (e.g., was the hypothesis supported and how do the results show—or fail to show—evidence of this?).
 - If there is more than one experiment in the study you are critiquing, it is usually best to first describe the hypothesis/method/results and interpretation for Experiment 1, then do the same for Experiment 2, etc.

Requirement	Due date	Points or % of final grade (% must sum to 100%)
Active class participation	NA	10%
Seminar Presentation I	Multiple dates	15%
Seminar Presentation II	Multiple dates	15%
Seminar Presentation III	Multiple dates	15%
Seminar Presentation IV	Multiple dates	15%
Final Paper: Outline	14-March	5%
Final Paper: First draft	28-March	5%
Final Paper: Second draft	11-April	10%
Final Paper: Final version	25-April	10%

Percentage	93-100	90-92	87-89	83-86	80-82	77-79	70-76	67-69	63-66	60-62	< 60
Letter Grade	A	A-	B+	B	B-	C+	C	D+	D	D-	E
Grade Points	4.0	3.67	3.33	3.0	2.67	2.33	2.0	1.33	1.0	0.67	0.0

** Note that the Bachelor of Health Science Program does not use C- grades.

More information on UF grading policy may be found at:

<https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/>

Class attendance: Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found [here](#). Please note all faculty are bound by the UF policy for excused absences. For information regarding the UF Attendance Policy see the Registrar website for additional details: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

Grades and grading policies: Information on current UF grading policies for assigning grade points can be found [here](#).

Make-up Work: Information on current UF grading policies for make-up work can be found [here](#) and [here](#). Please note that any requests for make-ups due to technical issues must be accompanied by the [UF Computing help desk](#) correspondence. You must e-mail me within 24 hours of the technical difficulty if you wish to request a make-up.

7 UF Policy Statements

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.

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 professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available [here](#). Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or [here](#). Summaries of course evaluation results are available to students [here](#).

On Campus Face-to-Face

We will have face-to-face instructional sessions to accomplish the student learning objectives of this course. In response to COVID-19, the following policies and requirements are in place to maintain your learning environment and to enhance the safety of our in-classroom interactions.

- You are required to wear approved face coverings at all times during class and within buildings. Following and enforcing these policies and requirements are all of our responsibility. Failure to do so will lead to a report to the Office of Student Conduct and Conflict Resolution.
- This course has been assigned a physical classroom with enough capacity to maintain physical distancing (6 feet between individuals) requirements. Please utilize designated seats and maintain appropriate spacing between students. Please do not move desks or stations.
- 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.
- Follow your instructor’s guidance on how to enter and exit the classroom. Practice physical distancing to the extent possible when entering and exiting the classroom.

- If you are experiencing COVID-19 symptoms (<https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html>), please use the UF Health screening system (<https://coronavirus.ufhealth.org/screen-test-protect/covid-19-exposure-and-symptoms-who-do-i-call-if/>) and follow the instructions on whether you are able to attend class.
 - 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 (<https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/>).

Policy Related to 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 review the [Classroom Guests of Students policy](#) in its entirety.

Copyright and intellectual property: Instructor generated course materials (e.g., handouts, notes, summaries, exam questions, etc.) may not be copied, shared, or distributed in any form or in any medium without explicit permission of the instructor.

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.

8 Support Services

Accommodations for students with disabilities: If you require classroom accommodation because of a disability, it is strongly recommended you register with the [Dean of Students Office](#) within the first week of class or as soon as you believe you might be eligible for accommodations. The Dean of Students Office 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 an instructor and/or seek help through University resources available to you.

U Matter, We Care: If you or someone you know is in distress, please contact umatter@ufl.edu, 352-392-1575, or visit umatter.ufl.edu/ to refer or report a concern and a team member will reach out to the student in distress.

Counseling and Wellness Center: Visit counseling.ufl.edu/ or call 352-392-1575 for information on crisis services as well as non-crisis services.

Student Health Care Center: Call 352-392-1161 for 24/7 information to help you find the care you need, or visit shcc.ufl.edu/

University Police Department: Visit police.ufl.edu/ or call 352-392-1111 (or 9-1-1 for emergencies).

UF Health Shands Emergency Room / Trauma Center: For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608; ufhealth.org/emergency-room-trauma-center

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.

Academic Resources:

E-learning technical support: Contact the UF Computing Help Desk at 352-392-4357 or via e-mail at helpdesk@ufl.edu

Career Connections Center: Reitz Union Suite 1300, 352-392-1601. Career assistance and counseling services career.ufl.edu/

Library Support: cms.uflib.ufl.edu/ask various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center: Broward Hall, 352-392-2010 or to make an appointment 352- 392-6420. General study skills and tutoring. teachingcenter.ufl.edu/

Writing Studio: 2215 Turlington Hall, 352-846-1138. Help brainstorming, formatting, and writing papers. writing.ufl.edu/writing-studio/

Student Complaints On-Campus: sccr.dso.ufl.edu/policies/student-honor-codestudent-conduct-code/

On-Line Students Complaints: distance.ufl.edu/student-complaint-process/

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 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](#).

9 References

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Boersma, P., & Weenink, D. (2021). Praat: doing phonetics by computer. (Version 5.3.51) [Computer program]. <http://www.praat.org/>

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55, 149-179.

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Fowler, C.A. (1984). Segmentation of coarticulated speech in perception. *Perception & Psychophysics*, 36, 359–368.

Fowler CA. (1996). Listeners do hear sounds, not tongues. *Journal of the Acoustical Society of America*, 99, 1730-41.

Galantucci, B., Fowler, C.A., Turvey, M.T. (2006). The motor theory of speech perception reviewed. *Psychological Bulletin & Review*, 13, 361-77.

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