

# Core 103 Syllabus Human Speech

Draft 12/2/22

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courtesy of Dr. Yongwan Lim

## Course Evaluations

Prof. Dani Byrd

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GFS 301

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*Spoken language is a hallmark capacity of human cognition. This course introduces students to thinking about language as a physical act taking place in a dynamic and social context. We study the astonishing diversity of speech sounds that encode words in the world's languages and learn how these sounds are articulated in the vocal tract. We tackle an elementary understanding of the acoustics of speech and of the physiology of healthy hearing. Students discover fundamental characteristics of human speech perception and consider the amazing process of how babies acquire language. We then turn our attention to bilingualism, second language acquisition, and language diversity and variation. This body of knowledge is ultimately deployed in a consideration of vocal performance and of speech in breakdown—how certain diseases and disorders can affect the ability to speak and hear. We finish by considering implications of what we have learned for speech technologies including cochlear implants, speech synthesis, and automatic speech recognition. Multimodal material is featured throughout the course, including state-of-the-art medical imaging, AV demonstrations, and online videos and resources.*

## Class Meetings Spring 2023

*Lecture:* Th Th 12:30-1:50 (63513D) in WPH 102

*Discussion Sections:* Mondays at 4 (63514D) in THH 215 and at 5 (63515D) in CPA 105

Occasional meetings will occur in 'lab' timeslot Tues 5-8, including Tuesday January 17.

If we are remote, here are Professor Byrd's [Netiquette](#) expectations for the virtual classroom.

*Core 103—The Process of Change in Science—is a science General Education Course in USC's Thematic Option Honors Program examining critical problems in the development of scientific*

*thought, studied as vehicles for understanding the content and structure of the sciences. Specific subject matter in selected scientific disciplines is presented.*

## Course Goals

- To place human language in the context of cognitive science
- To begin to think about spoken language in a dynamic & social context
- To understand how the sounds of the world's languages are articulated and coordinated
- To have an elementary understanding of the acoustics of speech
- To understand fundamental properties of speech perception
- To become familiar with the acquisition of speech and the forms of its breakdown in various speech and hearing disorders
- To see implications of this knowledge for spoken language technologies

## Learning Objectives

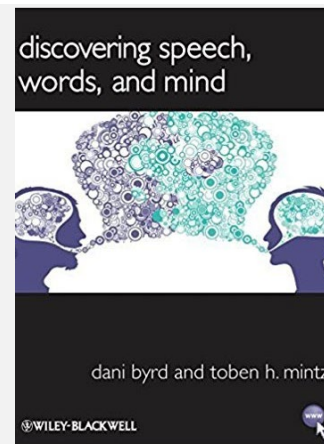
- Demonstrate learning related to course goals through question-answer assessment
- Quantify and analyze original data in mini datasets
- Peruse, assess and select original research articles from library journal collections
- Synthesize accurately primary research literature in speech science
- Explain in written and oral form experimental and/or quantitative data and findings related to human spoken language
- Develop a functional understanding of healthy and disordered language that can be drawn on to make informed life decisions.

## Book

D. Byrd & T. Mintz. (2010) [\*Discovering Speech, Words, and Mind\*](#). Wiley-Blackwell Publishing. (Also available on reserve at Leavey.)

Other readings will be assigned and posted as links or downloadable

pdfs.



## Work

- Reading in preparation for class
- Attendance and participation in class required
- Assigned independent work
- Three tests (non-cumulative)

**Slack** will be used for information sharing about interesting media, news and current events, to reiterate in-class announcements, or for class-relevant conversation. Please turn on notifications for the class channel.

## Grades

- Test 1: 20%
- Test 2: 20%
- Test 3: 20% (not cumulative but in the final exam timeslot)
- Four homeworks: 18% total (no late assignments accepted except as noted below)
- Two short papers (a written lab report and a self-selected written research synopsis with oral presentation): 22% total (no late assignments accepted)
- Participation: For course grades that are computed to be 'on the bubble,' in-lecture engagement and participation (including 'TestBank' contributions) may

be taken into account in tipping a grade upward or not.

**Assignments:** Some assignments will involve the use of a computer; some will be writing and/or analysis oriented. Assignments will be released at least one week prior to their due date. [Audacity](#) sound editing software will be used and is downloadable. Phonetics fonts are available from the [International Phonetic Association](#) or via the symbol character viewer on a mac; or they may be handwritten.

**Late homeworks** are not accepted with the following exception: A request to the professor in advance to use your course 'TimeBank' allows for one two-day extension or two one-day extensions over the course of the semester to be applied to a **Homework only**—not applicable for the lab report, paper, or oral presentation.

**All assignments are to be done \*\*independently\*\***, not in teams, not with partners, not in collaboration. Copying or collaborating on homework assignments (or exams) will be considered a violation of Academic Integrity (see further below).

**The course** will be graded on a curve (applied to final grades): *roughly* top 45% As, next 45% Bs, next 10% Cs and below. The curve will not however move grades down.

**Tests** cannot be 'made up' or taken early unless arrangements with the instructor are *made in advance* and are due to documented *unavoidable circumstances* (aka an [emergency](#)).

## Detailed Course Schedule

### with Readings and Assignments by Week

<https://sites.google.com/view/danibyrd-home/core-103-syllabus/core-103-weekly-schedule>

### Topic Outline

Introduction and Course Overview  
The Speech Chain; Vocal Tract Anatomy  
English Sounds

Week 1	Transcription Speech Acoustics: Waveforms
Week 2	Speech Acoustics: Source Filter Theory Formants and Vowels
Week 3	Spectrograms; Sounds of the World's Languages: Consonants and Vowels Sounds of the World's Languages: Airstream Mechanisms (also in section BeatBoxing and vocal performance]
Week 4	Sounds of the World's Languages: Phonation Type & Tone Varieties of English
Week 5	Test 1 (material weeks 1-5.1) Qualities of the Speech Signal: Lack of Invariance & Lack of Segmentability
Week 6	Sine Wave Speech, McGurk Effect, and Word Segmentation Speech Perception: Categorical Perception
Week 7	Speech Perception (cont.): Categorical Perception and Infant Language Acquisition Duplex Perception and Theories of Speech Perception
Week 8	Phonology and Speech Errors Test 2 (material weeks 6-9)
Week 9	Bilingualism
Week 10	Guest Speaker--Heritage Languages Hearing and Deafness
Week 11	Guest Speaker--Signed Languages Hearing Loss and Hearing Technologies
Week 12	Speech and Voice Disorders Speech Technologies: Speech Synthesis
Week 13	Oral presentations
Week 14	Speech Technologies: Speech Recognition; Class Conclusion
Week 15	Test 3 (material weeks 10-15)
Final Exam Slot (Test 3) Wed May 10, 2-4pm	

## [USC and Related Support Resources](#)

## Communication, Policy and Academic Integrity Information

In addition to the utility of Blackboard, it will be useful to communicate with each other **using email**. In this way, you can be advised of changes, and I can be advised of any problems that you encounter. Please know that for this class *I will expect you to check your email*. In case you are unfamiliar with email, communications should be respectful and grammatical.

*Statement on Plagiarism* – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Other forms of academic dishonesty are equally unacceptable. Please familiarize yourself with the discussion of plagiarism and the Student Community Expectations for Integrity and Accountability in the [USC Student Handbook](#) (p. 11-13) and with university policy on [Research and Scholarship Misconduct](#). I expect all students to uphold these expectations. Because violations of academic integrity harm every student in the class, the instructor will aggressively prosecute any student who cheats on an exam or homework or who allows others to cheat on an exam or homework. All homework and tests in this class are completely independent assignments prohibiting collaboration of any kind.

**Final Exam Schedule Notice**—Note that [USC requires](#) that: “No deviations from the published examination period are permitted for courses scheduled in a standard session during the fall and spring semesters, unless faculty have authorization in advance from the Committee on Academic Policies and Procedures (CAPP). CAPP will not consider any faculty request for rescheduling a final examination without unanimous written consent of all students in the class...No student is permitted to omit or take early a final examination and no instructor is authorized to permit a student to do so.”

**Emergency Preparedness/Course Continuity in a Crisis**—Please ensure that you are signed up with TrojanAlerts. “In case of a declared emergency if travel to campus is not feasible, USC executive leadership will announce an electronic way for instructors to teach students in their residence halls or homes using a combination of Blackboard, teleconferencing, and other technologies. See the university’s site on [Campus Safety and Emergency Preparedness](#).”

(The inclusion here of the material below is required by USC.)

### **Academic Integrity**

The University of Southern California is foremost a learning community committed to fostering successful scholars and researchers dedicated to the pursuit of knowledge and the transmission of ideas. Academic misconduct is in contrast to the university’s mission to educate students through a broad array of first-rank academic, professional, and extracurricular programs and includes any act of dishonesty in the submission of academic work (either in

draft or final form).

This course will follow the expectations for academic integrity as stated in the [USC Student Handbook](#). All students are expected to submit assignments that are original work and prepared specifically for the course/section in this academic term. You may not submit work written by others or “recycle” work prepared for other courses without obtaining written permission from the instructor(s). Students suspected of engaging in academic misconduct will be reported to the Office of Academic Integrity.

Other violations of academic misconduct include, but are not limited to, cheating, plagiarism, fabrication (e.g., falsifying data), knowingly assisting others in acts of academic dishonesty, and any act that gains or is intended to gain an unfair academic advantage.

The impact of academic dishonesty is far-reaching and is considered a serious offense against the university and could result in outcomes such as failure on the assignment, failure in the course, suspension, or even expulsion from the university.

For more information about academic integrity see the [student handbook](#) or the [Office of Academic Integrity's website](#), and university policies on [Research and Scholarship Misconduct](#).

## **Course Content Distribution and Synchronous Session Recordings Policies**

USC has policies that prohibit recording and distribution of any synchronous and asynchronous course content outside of the learning environment.

Recording a university class without the express permission of the instructor and announcement to the class, or unless conducted pursuant to an Office of Student Accessibility Services (OSAS) accommodation. Recording can inhibit free discussion in the future, and thus infringe on the academic freedom of other students as well as the instructor. ([Living our Unifying Values: The USC Student Handbook](#), page 13).

Distribution or use of notes, recordings, exams, or other intellectual property, based on university classes or lectures without the express permission of the instructor for purposes other than individual or group study. This includes but is not limited to providing materials for distribution by services publishing course materials. This restriction on unauthorized use also applies to all information, which had been distributed to students or in any way had been displayed for use in relationship to the class, whether obtained in class, via email, on the internet, or via any other media. ([Living our Unifying Values: The USC Student Handbook](#), page 13).

## **Course Evaluations**

Course evaluation occurs at the end of the semester university-wide.

## **Students and Disability Accommodations**



USC welcomes students with disabilities into all of the University's educational programs. The Office of Student Accessibility Services (OSAS) is responsible for the determination of appropriate accommodations for students who encounter disability-related barriers. Once a student has completed the OSAS process (registration, initial appointment, and submitted documentation) and accommodations are determined to be reasonable and appropriate, a Letter of Accommodation (LOA) will be available to generate for each course. The LOA must be given to each course instructor by the student and followed up with a discussion. This should be done as early in the semester as possible as accommodations are not retroactive. More information can be found at [osas.usc.edu](https://osas.usc.edu). You may contact OSAS at (213) 740-0776 or via email at [osasfrontdesk@usc.edu](mailto:osasfrontdesk@usc.edu).

### **Support Systems:**

#### [Counseling and Mental Health](#) - (213) 740-9355 – 24/7 on call

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

#### [988 Suicide and Crisis Lifeline](#) - 988 for both calls and text messages – 24/7 on call

The 988 Suicide and Crisis Lifeline (formerly known as the National Suicide Prevention Lifeline) provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week, across the United States. The Lifeline is comprised of a national network of over 200 local crisis centers, combining custom local care and resources with national standards and best practices. The new, shorter phone number makes it easier for people to remember and access mental health crisis services (though the previous 1 (800) 273-8255 number will continue to function indefinitely) and represents a continued commitment to those in crisis.

#### [Relationship and Sexual Violence Prevention Services \(RSVP\)](#) - (213) 740-9355(WELL) – 24/7 on call

Free and confidential therapy services, workshops, and training for situations related to gender- and power-based harm (including sexual assault, intimate partner violence, and stalking).

#### [Office for Equity, Equal Opportunity, and Title IX \(EEO-TIX\)](#) - (213) 740-5086

Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants.

#### [Reporting Incidents of Bias or Harassment](#) - (213) 740-5086 or (213) 821-8298

Avenue to report incidents of bias, hate crimes, and microaggressions to the Office for Equity, Equal Opportunity, and Title for appropriate investigation, supportive measures, and response.

#### [The Office of Student Accessibility Services \(OSAS\)](#) - (213) 740-0776

OSAS ensures equal access for students with disabilities through providing academic accommodations and auxiliary aids in accordance with federal laws and university policy.

#### [USC Campus Support and Intervention](#) - (213) 740-0411

Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

#### [Diversity, Equity and Inclusion](#) - (213) 740-2101

Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

[USC Emergency](#) - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call

Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

[USC Department of Public Safety](#) - UPC: (213) 740-6000, HSC: (323) 442-1200 – 24/7 on call

Non-emergency assistance or information.

[Office of the Ombuds](#) - (213) 821-9556 (UPC) / (323-442-0382 (HSC)

A safe and confidential place to share your USC-related issues with a University Ombuds who will work with you to explore options or paths to manage your concern.

[Occupational Therapy Faculty Practice](#) - (323) 442-2850 or [otfp@med.usc.edu](mailto:otfp@med.usc.edu)

Confidential Lifestyle Redesign services for USC students to support health promoting habits and routines that enhance quality of life and academic performance.

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Web Art Credit: Lena Foellmer

Dani Byrd • USC Linguistics • Los Angeles, CA USA • (213) 740-2986 [dept] • [dbyrd@usc.edu](mailto:dbyrd@usc.edu)

## Core 103 Human Speech

# Weekly Schedule

Back to [Syllabus](#)

Spring 2023

Weekly Schedule Subject to Change — Always check back for current status

### Week 1

#### **No Sections on Monday**

#### **Lecture 1 January 10:** Introductions and Course Overview

Read and bookmark: [Syllabus](#) and this Weekly Schedule [also bookmarked already on our Slack channel]

Review: [Collection of USC Support Resources](#)

*Reading Due:* [DSWM](#) Chapter 1;  
["What is Correct Language" Ed Finegan](#);  
[Prof Anne Curzan "What makes a word 'real'?"](#)

[DSWM](#) = textbook  
*Discovering Speech, Words, and Mind* Byrd & Mintz ([associated website](#))

Items labeled "Fun" or "Optional" are *optional*, but encouraged time-allowing.

I recommend printing [or at least downloading] "*Handouts*" to bring to class on the day indicated

## Vocal Tract Anatomy

*Reading Due:* DSWM Chapter 2 Section 1 pp. 23-39

*Odyssey "Speech: Dances of the Vocal Tract" by Rubin & Goldstein*

*Fun Website:* [Slo-Mo Gargling](#); [When Something Goes Down the "Wrong Tube" \[dissection video\]](#)

### **Lecture 2 January 12:** English Sounds

*Reading Due:* DSWM Chapter 2 Section 1

*Fun Website:* [Real-time MRI IPA Chart](#) collected here at [USC](#)

*Two handouts for you to print and keep:* mini [IPA Chart for English Sounds](#); [English Contrasts](#) (These are combined into a [single pdf here](#), albeit slightly smaller.)

### **Weekly Discussion Meeting Activity: No sections prior to first lecture**

and for later reference.

You will **not** necessarily be reminded regarding when homework is due; keeping up with this is your responsibility.

## Week 2

### **Lecture 1 January 17:** Transcription

*Reading Due:* DSWM Chapter 2 Section 1 pp. 39-50

*Handouts:* Bring handouts from Week 1

### ***Weekly Discussion Meeting Held in Lab Slot WPH 301 Tuesday January 17 5-6 or 6-7:***

#### Introductions and Transcription of English Sounds

*Assignment Released:* [HW1 Transcription Homework](#). This clickable IPA chart [website](#) might be very helpful for 'typing' (copy & paste) IPA symbols.

### **Lecture 2 January 19:** Speech Acoustics: Waveforms and VOT

*Reading Due:* DSWM Chapter 2 Section 2 pp. 51-56

*Handout:* [Waveform Examples](#); And another handout to print, which will be uploaded to the Slack

*Optional Website (for after lecture and reading):* [Will Styler on Mondegreens](#)

## Week 3

### **Weekly Discussion Meeting Activity:** VOT and Waveforms and Downloading and Using [Audacity](#)

*Assignment Due at beginning of section:* HW1

*Assignment Released:* [HW2 Measuring Soundwaves](#)

### **Tuesday Night Activity (5-5:30 Freshmen; 5:30-6 Sophomores; 6-6:30 Juniors & Seniors):** Intro Zoom Chats with Professor Byrd

### **Lecture 1 January 24:** Speech Acoustics: Source Filter Theory

*Reading Due:* DSWM Chapter 2 Section 2 pp. 56-64

*Handout:* [Johnson Spectrum Handout](#) (Print or download these to have in class for lecture); [Source Filter Handout](#) (courtesy of Louis Goldstein)

*Fun Website:* [The Resonant Bridge](#)

### **Lecture 2 January 26:** Formants and Vowels

*Reading Due:* DSWM review Chap 2 Section 2  
*Handout:* A Course in Phonetics [Vowel spectra handout](#)  
*Optional Web Material:* [Kevin Russell's Acoustic Phonetics pages](#)  
*Fun Website:* [Make your own spectrogram \(requires microphone access\)](#)

## Week 4

**Weekly Discussion Meeting Activity:** Acoustics

**Assignment Due:** HW2

**Lecture 1 January 31:** Spectrogram practice and Sounds of the World's Languages

[SOWL]: Cs & Vs

*Reading Due:* DSWM Chapter 3 Section 1 pp. 72-82

*Handout (supplements to lecture rather than covered explicitly in lecture):* Complete [IPA Chart](#); [Bruce Hayes's Spectrogram Handout](#)

*Fun Websites:* [What are voiced and voiceless plosives \(aka stops\)?](#)

[UCLA Language Index for Sounds of the World's Languages](#) and [Vowels and Consonants; Talking IPA Chart](#) or [IPA with real-time MRI video from USC Span](#) (click on individual phonetician)

*Optional reading:* [Gibbs "Saving Dying Languages" Scientific American 2002](#)

**Lecture 2 February 2:** SOWL: Non-Pulmonic Consonants (Airstream Mechanisms)

*Reading Due:* A Course in Phonetics Ladefoged & Johnson pp. 144-159 ([pdf](#)) with accompanying [language samples](#)

## Week 5

**Weekly Discussion Meeting Activity:** SOWL and HW3 Intro

*Assignment Released:* [HW3 English Variety](#)

*Optional Assignment Due Monday:* [Test Bank Question due](#). Please follow the requirements!

**Lecture 1 February 7:** SOWL: Phonation Type and Tone

*Reading Due:* DSWM Chapter 3 Section 1 pp. 83-88;

*Optional Reading:* A Course in Phonetics Ladefoged & Johnson pp. 264-272 ([pdf](#)) with accompanying [language samples](#)  
"What it means to sound gay?" ([pdf](#))--[Washington Post July 28 2015](#)

*Fun website:* [What is vocal fry?](#)

**Lecture 2 February 9:** Varieties of English

*Reading Due:* DSWM Chapter 3 Section 2 pp. 89-97

[NYT Everyone has an Accent](#);

[Jamila Lyiscott TedSalon 2014 "3 Ways to Speak English"](#) (we plan to listen to this in class too)

*Optional:* [Linguists hear an accent begin](#) (Scientific American, 5 min audio);

[NYTimes Newsletter: CELF \(Clinical Evaluation of Language Fundamentals\)-5 test and children who speak Black English](#)

[Nicole Holliday's lecture "It's in the tone"](#): how we make sociolinguistic judgments based on the acoustic properties of the voice and what language can tell us about identity and inequality. [28 min]

*Fun websites:* [22 Maps That Show How Americans Speak English Totally Differently From One Another](#); [Your 'personal' dialect map](#); [The Cambridge Online survey](#) and its [results](#); [Accents of English](#) (JC Wells); [The speech accent archive](#)

## Week 6

### **Weekly Discussion Meeting Activity: Test Review**

**Lecture 1 February 14:** Test 1 (material from Week 1 - Week 5 Lecture 1 only)

**Lecture 2 February 16:** Puzzles of the Speech Signal: Lack of Invariance & Lack of Segmentability

*Reading Due:* DSWM Chapter 5 Section 1 pp. 114-124

Myers "[From Sound to Meaning](#)" *Physics Today* 2017

*Optional Reading* [just if you are particularly interested]: a 1985 'classic' on [Motor Theory Revisited from Liberman and Mattingly](#)

## Week 7

**Monday Feb 20 is a USC Holiday**

**Lecture 1 February 21:** Sine Wave Speech, McGurk Effect, and Word Segmentation

*Reading Due:* DSWM Chapter 5 Section 1 pp. 125-127 (and perhaps read ahead for next lecture)

*Optional Reading after lecture:* [Does Sensory Modality Matter? Not for speech perception](#) by L. Rosenblum

**Weekly Discussion Meeting Held in Lab Slot WPH 301 Tuesday February 21 5-6 or 6-7**

**Assignment Due:** [HW3](#)

**Lecture 2 February 23:** Speech Perception: Categorical Perception

*Reading Due:* DSWM Chapter 5 Section 2-3 (pp. 127-149); [Handout](#)

*Optional Reading:* [Language Files File 9.4 \[pdf\]](#); P. Eimas, "The Perception of Speech in Early Infancy" *Scientific American* [\[pdf\]](#)

## Week 8

**Weekly Discussion Meeting Activity: Categorical Perception**

*Assignment Released:* [Categorical Perception Experiment released for Paper One](#)

**Lecture 1 February 28:** Speech Perception (cont.): Categorical Perception, Infant Language Acquisition, and Duplex Perception

*Reading Due:* finish reading DSWM Chapter 5

Two Videos to watch: (5 min) [Janet Werker on the Conditioned Head Turn procedure](#)

(10 min) [The Linguistic Genius of Babies](#)--TED talk by Pat Kuhl

*Optional reading:* [The Ins and Outs of Baby Talk](#) – Linda Polka and Yufang Ruan; [Language Files Chapter 8. Files 8.0-8.2 \[only\]](#);

*(challenging):* Janet Werker, "Exploring developmental changes in cross-language speech perception" in Gleitman & Liberman (eds.) *An Invitation to Cognitive Science, Vol. 1: Language* 2nd Ed

**Lecture 2 March 2:** Speech Perception: Theories of Speech Perception and starting Phonology

*Reading Due:* [WSJ: The Ultimate Learning Machines](#) [pdf]

Start DSW Chapter 7

*Optional:* [Language Files Chapter 8 Files 8.2-8.4](#)

[Know your Brain: Mirror Neurons](#) (Marc Dingman); *The Atlantic*: "[The Mystery of Babies' First Words](#)"; "[Why so many](#)

[babies are getting their tongues clipped"](#)

Optional Assignment Due: [Test Bank Question due](#). Please follow the requirements!

## Week 9

**Weekly Discussion Meeting Activity:** Test Review, CP Assignment Help

**Lecture 1 March 7:** Phonology and Speech Errors (cont.)

Finish DSW Chapter 7

**Lecture 2 March 9: Test 2** (material from Week 5 Lect 2 - Week 9)

Friday March 10: **Assignment Due: Paper One Categorical Perception Experiment**

**Spring Break March 13-17 !!**

## Week 10

**Weekly Discussion Meeting Activity:** Finding and choosing your research article for your paper and presentation

**Assignment Due:** [Categorical Perception Experiment due Laboratory Paper One](#)

**Assignment Released:** [Paper Two Self-Selected Research Article Synopsis](#)

**Optional support reading for Paper 2:** DSWM Chapter 4

**March 21:** Bilingualism

**Reading Due:** [Language Files 12 Chapter 8, File 8.5; "Bilingualism" by Gigi Luk;](#)  
[Leon Panetta: Americans are losing out because so few speak a second language.](#)  
[37 maps that explain how America is a nation of immigrants](#) (Vox)

**Optional/Fun Readings:** From the *New Yorker* on Hyperglots "[The mystery of people who speak dozens of languages](#)"; "[How the Finnish survive without small talk](#)"; "[What language does your state speak](#)"; Washington Post Op-Ed: "[Trudeau says he wants to tackle systemic racism. He should start with this policy](#)" or [\[pdf\]](#)

**Random Fun Website:** [20 awesomely 'untranslatable' words from around the world](#)

**Lecture 2 March 23:** Bilingualism (cont.)

**Reading Due:** [Being Bilingual Changes the Architecture of Your Brain](#)

**Optional:** [Bilingual baby brains and executive function](#); [\[What is executive function\]](#); "[Why being bilingual works wonders for your brain](#)"; [\[But...The battle over bilingualism & exec function\]](#); and [No evidence for effects of Turkish immigrant children's bilingualism on executive functions](#)

**Fun Websites:** [Video example of code switching](#); (1 min); [Podcast on the benefits of bilingualism](#) (28 min)

## Week 11

**Weekly Discussion Meeting Activity:** TBD

*Assignment Due:* proposed Research Article for [Paper Two](#)--submission of proposed article due to Prof dropbox for approval

### **Lecture 1 March 28:** Heritage Language Speakers (Guest Speaker Professor Zuzanna Fuchs)

Reading due: [Heritage languages and heritage speakers](#) (book chapter) pdf pages 1-16, 22-28

Optional Reading: "[Forgetting my first language](#)" Jenny Liao, *The New Yorker*

### **Lecture 2 March 30:** Hearing and Deafness

*Reading Due:* DSWM Chapter 2 Section 3 pp. 65-71;

Required Videos: [Audiologist Answers Hearing Questions](#); [How Technology has Changed What It's Like to be Deaf](#):

Rebecca Knill Ted talk (14min)

Optional: ASHA Websites on [Hearing Loss](#) and on [Newborn Hearing Screening](#);

[The beautiful, mysterious science of how you hear](#): Jim Hudspeth Ted talk (15 min)--we will watch part of this in class

[A pretty good online hearing test](#) from Dr. Ir. Stéphane Pigeon -- need silence and headphones

## **Week 12**

**Instead of Section this week, there is a movie for you to watch on your own** (which has **required** 'pre'-reading). If you just can't do this assignment, please at least check out [Knill's TED talk](#).

- Documentary MOVIE (2000, i.e., 20 yrs old): "[Sound and Fury](#)" (1hr 30m)  
**1 point HW EC** for writing up three questions/observations about the movie; due to Dropbox Tues Apr 11.

Required pre-reading/watching **BEFORE** movie (note the differing dates on each of these materials as these ideas have matured over time):

- 2010: "[The pediatric cochlear implant: Genocide or medical miracle?](#)" (download link at left)
- 2018: [NYT Op Ed "A clearer message on cochlear implants."](#)
- 2020: [How Technology has Changed What It's Like to be Deaf](#): Rebecca Knill TED talk (14min)

### **Lecture 1 April 4:** Hearing Loss and Hearing Technologies

*Reading Due:* DSWM Chapter 11 (up to "Voice Disorders") pp. 266-276; "[This common habit can ruin your hearing and increase dementia](#)"

*Handout to print:* Common Misconceptions About Hearing [[website](#)] [[pdf](#)]

*Optional Reading:* [Experimental Brain-Controlled Hearing Aid Automatically Decodes, Identifies Who You Want to Hear](#);

*Optional Websites:* [NYT FDA clears path for hearing aids to be sold over the counter.](#)

### **Lecture 2 April 6:** Sign Languages

*Reading Due:* DSWM Chapter 9 pp. 224-234 only;

[Hickock, Bellugi, & Klima "Sign language in the brain" \*Scientific American\*](#)

Variation in ASL: [Signing Black in America](#) - more about this project at [www.talkingblackinamerica.org](http://www.talkingblackinamerica.org) (27 min; pls watch at least the first 12 min)

*Optional Websites:* [Do Sign Languages have Accents?](#); [Sign Language Isn't Universal](#); [Map of Sign Language Families](#); [ASL Browser](#)

*Optional Reading:* [Helmuth "From the mouths \(and hands\) of babes" \*Science Magazine\*](#)

*Optional reading: (somewhat technical):* "[The Remarkable Cochlear Implant and Possibilities for the Next Large Step Forward](#)." Blake S. Wilson

## **Week 13**

### **Weekly Discussion Meeting Activity: Intro HW 4(s); presentation & paper workshopping**

*Assignment Released* HW4 Two choices: **HW4-choice 1** [Online Speech Synthesis and Recognition Trials](#) (Please wait until after Thursday lecture before starting this)



**OR HW4-choice 2:** [An Interview](#) of someone with atypical speech or hearing (prereqs include watching both documentaries "Sound & Fury" and "When I Stutter")

### **Lecture 1 April 11:** Speech and Voice Disorders

*Reading Due:* DSWM Chapter 11 (remainder pp. 276-281);

*Optional Reading:* The Atlantic ["What Joe Biden Can't Bring Himself to Say"](#); Washington Post: ["What men should know about cancer that spreads through oral sex"](#) [pdf]

[When speech goes wrong: Evidence from aphasia \(Sheila Blumstein\)](#)

*Optional website to review:* [This American Life: Act One Time Bandit](#) (24min); [American Speech and Hearing Association, Vaping and Public Health](#); [What Vaping Does to the Body \(YouTube Institute of Human Anatomy \[includes dissection video\]\)](#)

**Optional documentary movie** ["When I Stutter"](#) (director John Gomez; 1hr7min); *required in order to do alternate HW 4.*

**Note** that if you want to do the alternate HW 4 on Atypical Speech/Hearing (instead of the Text-to-Speech Synthesis HW4), you will need to watch both documentaries: "Sound & Fury" and "When I Stutter."

### **Lecture 2 April 13:** Speech Technologies: Speech Synthesis

*Reading Due:* [Speech Synthesis: Toward a "Voice" for All](#). H. Timothy Bunnell

State of the art: [WaveNet](#) and [EATS](#)

*Fun Websites:* [A collection of some speech synthesis sites](#) ; [Kid tries to train Google Home](#); [Meet the Woman Behind Amazon Alexa](#); [A commercial with Susan Bennett \(the voice of Siri\)](#) [@ lower right

## **Week 14**

**Weekly Discussion Meeting Activity:** Zoom drop-in (regular timeslots) for consultation regarding Research Synopsis Paper

**Oral [Synopsis Presentations](#) in class this week**

**April 18 and April 20:** Class Oral Presentations (**attendance required and recorded**)

Questions on classmates' presentations due Friday.

**Friday April 21:** *Assignment Due:* Questions on classmates' presentations due

**SYNOPSIS PAPER DUE BY MIDNIGHT Sunday April 23:** [Paper 2 Synopsis Written Report](#)  
[Word doc preferred, pdf accepted. No Google docs.]

## **Week 15**

**Weekly Discussion Meeting Activity:** HW4 and Test Review and section evals

### **Lecture 1 April 25:** Speech Technologies: Speech Recognition

*Reading Due:* [Language Files Chapter 16](#)

*Optional Reading:* Markowitz on ["Voice Biometrics"](#), [The Ethics of a Deepfake Anthony Bourdain Voice](#), Helen Rosner

*Fun Websites:* ["How computers parse the ambiguity of everyday language"](#); ["Alexa, Siri, and Google Don't Understand a Word You Say"](#)

For those with a deeper more technical interest, 1.5 hour high-level lecture by Preethi Jyothi on [Automatic Speech Recognition](#)

**April 27:** Class Conclusion and Evals

Optional Reading: [Language Files Chapter 17 Practical Applications \[of Linguistics\]](#)

Optional [Test Bank Question .due](#). Please follow the requirements

## HW4 Due Wednesday May 3.

**Test 3 (in final exam slot)** (material weeks 10-15 [only], i.e. not cumulative).

**Wednesday May 10 2-4pm**

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