



California State University, Sacramento

Department of Communication Sciences and Disorders

UNDERGRADUATE SYLLABUS & COURSE OUTLINE

Semester/Year: Fall 2022	Course: CSAD 110 Physics of Sound and Phonetics.	Section: 01
Meeting Days: Monday/Wednesday	Meeting Times: 09:00 AM-10:50 AM	Location: In person, synchronous
Instructor: Dr. Lisa D'Angelo, CCC-SLP	Email: dangelo@csus.edu	Phone: 530-400-1970 (text, emergency only)
Office Location: Folsom Hall 2316	Office Hours/Appointments: By appointment.	

Catalogue Course Description:

CSAD 110. Physics of Sound and Phonetics.4 Units

Prerequisite(s): [CHDV 30](#), [DEAF 51](#), [PSYC 2](#), and [STAT 1](#)

Corequisite(s): [CSAD 111](#)

Term Typically Offered: Fall only

Physical production, acoustic characteristics of sounds of speech. International Phonetic Alphabet as applied to speech sounds; practice in phonetic transcription of dialects and deviant speech; applications in speech education, speech and hearing therapy. Introduction to physiological acoustics, psychoacoustics, and acoustic phonetics. Perception of speech including voice, resonance, individual speech segments; instrumentation for acoustic and perceptual analysis of speech.

Place of Course in Program

<u>Sacramento State Baccalaureate Learning Goals for the 21st Century (BLG)</u>	Addressed by this course (Y/N)
Competence in the Disciplines: <i>The ability to demonstrate the competencies and values listed below in at least one major field of study and to demonstrate informed understandings of other fields, drawing on the knowledge and skills of disciplines outside the major.</i>	Y
Knowledge of Human Cultures and the Physical and Natural World <i>through study in the sciences and mathematics, social sciences, humanities, histories, languages, and the arts. Focused by engagement with big questions, contemporary and enduring.</i>	Y
Intellectual and Practical Skills, including: <i>inquiry and analysis, critical, philosophical, and creative thinking, written and oral communication, quantitative literacy, information literacy, teamwork and problem solving, practiced extensively, across the curriculum, in the context of progressively more challenging problems, projects, and standards for performance.</i>	Y
Personal and Social Responsibility Including: <i>civic knowledge and engagement—local and global, intercultural knowledge and competence*, ethical reasoning and action, foundations and skills for lifelong learning anchored through active involvement with diverse communities and real-world challenges</i>	Y
Integrative Learning**, Including: <i>synthesis and advanced accomplishment across general and specialized studies</i>	Y

UNDERGRADUATE

Mastery of each student-learning outcome listed below is indicated by a grade of C or better on each component of the corresponding measures listed in the table. Students are required to track their progress towards meeting each learning outcome and must make an appointment with the instructor for any grade equal to or less than a C. The instructor will suggest strategies to help you establish competence and knowledge in these areas.

Students should track their progress towards meeting each learning outcome by listing their grades on the table below over the course of the semester.

CSAD 110 SPECIFIC STUDENT LEARNING OUTCOMES:

1. Students will be able to identify and discuss the physical and perceptual properties of the production of specific sounds.
2. Students will be able to accurately identify and describe both the articulatory and acoustic properties of speech sounds (vowels, consonants, diphthongs) using verbal descriptions and graphic representations of these properties.
3. Students will be able to accurately identify and critically evaluate how research in speech science is applied to clinical treatment in speech pathology and audiology.
4. Students will be able to use computer resources to improve learning process.
5. Students will be able to describe the psychoacoustic co-relates of sound namely pitch, loudness and timbre.
6. Students will be able to identify the role played by the critical band in the understanding of auditory information.
7. Students will demonstrate competence in transcribing normal and abnormal speech into the International Phonetic Alphabet.
8. Students will understand phonemic versus phonetic contrasts as well as the nature of sound variation in speech production.
9. Students will understand basic anatomy and physiology of the speech mechanism.
10. Students will understand the basic process of early articulation and phonology development.
11. Students will understand the difference between an articulation approach and a phonological approach evaluating and treating speech disorders.
12. Students will understand that cultural pronunciation differences exist and do not constitute “disordered” speech.
13. The student will be able to accurately describe the theory and practice of physiologic, psychoacoustic, acoustic and perceptual phonetics.

Course Learning Outcome	Components Indicating Competence	Grades Received
1	Quiz 1, 2; Lab 1; Exam 1	
2	Exam 1; Spectrogram	
3	Exam 1	
4	Lab 2	
5	Quiz 1& 2; Exam 1	
6	Lab 2, Exam 1	
7-8	Exams 3 & 4	
9	Exam 2	
10-11	Exams 3 & 4	
12	Exams 3 & 4	
13	Exam 4	

Textbooks and Materials:

COURSE MATERIALS:

Required Texts & Audio CD:

Small, Larry. (2019). *Fundamentals of Phonetics: A Practical Guide for Students*, 5/E
Boston: Pearson. **(library created PDFs and these are posted in Canvas.)**

Or

Small, Larry. (2019) **Fundamentals of Phonetics: A Practical Guide for Students (Subscription), 5th Edition (eText)**
Boston: Pearson.

Raphael, L.J. Borden, G.J., Harris, K.S., (2011). *Speech Science Primer: Physiology, Acoustics and Perception of Speech*. Sixth Edition. MA: Lippincott, Williams & Wilkens. **You do not need to buy!!!/see above**

Optional: Audio CD Package for *Fundamentals of Phonetics: A Practical Guide for Students*, 4/E
(Package ISBN# 0134204816 includes both text and CD)

This website is an easy way to write in IPA: <https://ipa.typeit.org/>

Other Required Materials:

Headphones and attached headset microphone

This can be an inexpensive pair but must have a microphone with at least 20-20K Hz range. **YOUR EARBUDS WITH MICROPHONE FROM YOUR PHONE MAY WORK.** You just need to have a microphone on your computer. I have Sony headphones with microphones that can be borrowed for this lab.

Online Resources:

Canvas: This course is embedded into a Web Course format. You **must** have an active CSUS email and use CSUS's Canvas platform to access lectures, course assignments, class discussions and class email. See participation note below.

Course Requirements/Components:

ASSESSMENT:

Student learning outcomes will be assessed with the following assessment strategies:

Assignments (5 points each to total 65 points): Thirteen assignments are scheduled throughout the semester. These are no-fault assignments that will receive full points so long as they are submitted on time to Canvas. These assignments may be discussed in class but individual feedback is limited unless you sign up/schedule an appointment with the instructor. The answers will be released to you after the homework submission date has passed. I encourage you to organize study groups and go over these assignments together to prepare for the exams.

Late Assignments: I will not accept **ANY** late assignments (unless you are medically excused as in injured, hospitalized, etc.). It is your responsibility to get them to me on time. If you are unable to turn them into me in class then I will accept them earlier. PLEASE make arrangements with me if this is the case. This is to prepare you for the many reports, letters, and IEPs that you as a clinician will be writing in the future. You simply cannot be late with these.

Quizzes (15 points each to total 30 points)

There will be two short quizzes at the beginning of the semester.

Exams (100 points each to total 400 points): There will be four exams (including the final). All exams are cumulative. Exam dates are tentative except final exam. All exams will be a combination of multiple choice, short answer, fill-in, essay and transcription. All exams will be cumulative covering all material from the course up to the

date of the exam. This is necessary since the material requires a build-up of knowledge throughout the semester. During the transcription sections of the course, the exams come up quickly after each other. Please pay close attention to the syllabus/schedule so you are well prepared for all exams.

Labs (50 points each to total 100 points): There will be two lab exercises. Each lab day students will complete and turn in completed lab write-ups. Lab write-ups include written responses to questions. ***Labs may be completed in pairs or small groups but the write-up of the lab should be done individually.*** Complete instructions will be available in the assignment on Canvas.

Spectrogram (55 points): Students will be given one spectrogram of a sentence at the midpoint of the semester and will be asked to interpret what the sentence says over the course of the semester. Results will be graded according to how well the student identifies the sentence. This will be judged in terms of acoustically definable distinctive features and feasible linguistic entities.

Polling and Discussion Participation: I will post discussion topics and you will receive extra credit points for participation.

Grading Policy:

Your final Grade will be computed as follows:

Assignments	65 points
2 Quizzes	30 points
4 Exams	400 points
2 Lab Reports	100 points
<u>Spectrogram</u>	<u>55 points</u>
Total:	650 points

Letter grades are assigned according to the following scores:

The Final Grade will be computed as a % of points earned out of a total of 650 points as follows:

<u>Percentage</u>	<u>Letter</u>
94.5-100	A
89.5-94.4	A-
86.5-89.4	B+
83.5-86.4	B
79.5-83.4	B-
76.5-79.4	C+
73.5-76.4	C
69.5-73.4	C-
66.5-69.4	D+
63.5-66.4	D
59.5-63.4	D-
Below 59.5	F

Course Policies/Procedures:

Policy on making up exams: No make-up exams are given unless there is a documented medical emergency with written proof. **Any make up exams are scheduled during dead week in an essay format.**

Being late for an exam will not automatically entitle you to extra time. Please make sure you arrange your schedules to be here on time for the exams. If you miss a short quiz because you are late for class, or absent you will not be able to make it up, so try not to miss any quizzes.

Policy on attendance: *Students are expected to attend class on a regular basis.* Absences are excused for documented medical or emergency events only.

Drop/Add: Students may drop classes according to University/Department Policy. You should speak to me if you would like to add the course before attempting to do so. Students must fill out appropriate forms and meet University deadlines to drop or add classes.

TENTATIVE Course Schedule/Outline:

<u>Date</u>	<u>Topic</u>	<u>Readings/Practice/Activities</u>
Aug 29	Introduction: Course Overview Language, Phonetics and Speech Production	Assignment 1: Log on to Canvas before and see instructions for Assignment 1 (Due Sept 1)
Aug 31	Acoustics 1 and 2: Simple Harmonic Motion, Complex Waves, etc.	Reading: Raphael, Chapter 2: pp. 17-29 Assignment 1 Due (Discussion Post, and response to others)
Sept 5	Labor Day--Holiday!!	
Sept 7	Acoustics 2 & 3: Physical and Perceptual Properties	Reading: Raphael, Chapter 2: pp. 29-37
Sept 12	Quiz #1 (on Canvas) Acoustics 3: Physical and Perceptual Properties Acoustic Analysis/Measurement Techniques	Reading: Raphael, Chapter 13: pp. 276-285 Raphael, Chapter 14: pp. 287-297
Sept 14	Resonance & Source Filter Theory	Reading: Raphael, Chapter 2: pp. 37-39
Sept 19	Resonance & Source Filter Theory Lab 1 (in class and home project)	Reading: Raphael, Chapter 5: pp 96-98

Sept 21	Acoustics of Vowel Production	Reading: Raphael, Chapter 5: pp. 93-104
Sept 26	Acoustics of Vowel Production	
Sept 28	Quiz #2 (on Canvas) Front Vowels, Back Vowels, Diphthongs and Formant Transitions	Reading: Raphael, Chapter 5: pp 104-112 <i>Lab 1 Due on Canvas</i>
Oct 3	Lab 2: Acoustics Lab Exam Review	
Oct 5	<u><i>Exam 1 in person</i></u> Vowels and Diphthongs continued	
Oct 10	Lab 2: Acoustics Lab continued	
Oct 12	Phonetic Sciences	Reading: Small, Chapter 1
Oct 17	Linguistic Phonetics (cont.): Language Systems, Morphology, Phonology Phonemes vs. Allophones Minimal Pairs	Reading: Small, Chapter 2: pp 9-19 Small, Chapter 2: pp 29-30 Assignment 2-1 (due Oct 26) Assignment 2-2 items #1 & #2 (due Oct 26)
Oct 19	Phonology Phonotactics: Syllables, Lexical Stress, Exercises in Stress	Reading: Small, Chapter 2 pp 20-23 Small, Chapter 2 pp 24-33 Assignment 2-2 Items #3 <u>through</u> #8 (due Oct. 26)
Oct 24	Speech Production Systems Extra Lab 2 time if needed	Reading: Small, Chapter 3 <i>Lab 2 due on Canvas or hard copy October 25</i>
Oct 26	<u><i>Exam 2 in person</i></u>	Assignments due
Oct 31	Vowels Front Vowels	Reading: Small, Chapter 4 Assignment 4-1 (due Nov 14)

	Back and Central Vowels r-Colored Vowels & Diphthongs	Assignment 4-2 (due Nov 14) Assignment 4-3 (due Nov 14) Assignment 4-4 (due Nov 14)
Nov 2	Classification Systems of Consonants Place, Manner, Voicing Distinctive Features <u>Start Transcription in Class Period</u>	Reading: Small, Chapter 5 pp 111-146 Assignment 5-1 and 5-2 (due Nov 30)
Nov 7	Consonants continued; transcription	
Nov 9	Consonants; transcription	
Nov 14	Consonants continued / Exam review transcription	Assignments due
Nov 16	<i>Exam 3 in person</i>	
Nov 21	Stops, Nasals, Fricatives and Affricates. Approximant Consonants: Glides and Liquids; transcription	Reading: Small, Chapter 5 pp 147-157 Assignment 5-3, 5-4, and 5-5 (due Nov 30) Assignments due
Nov 23	Spectrogram Work Day on Your Own Then.....<i>No Class Today</i> THANKSGIVING!!!!	Work.....then EAT!!!!
Nov 28	Acoustics: Resonant Consonants transcription	Reading: Raphael: Ch. 6, pp. 114-123
Nov 30	Non Resonant Consonants Clinical Transcription Diacritical Markings Spectrogram Review; transcription	Reading: Raphael: Ch. 6, pp. 123-135 Assignments due
Dec 5 and 7: Review for Final Exam, Continued Transcription Final Exam week of Dec 12 (Exam 4)		Spectrograms Due Dec 7

Additional Information

Health & Safety Information:

Safety and wellness: Welcome! It's great to be together on campus. You should be aware by now of Sacramento State's Fall 2022 COVID 19 policies. You can find out more at Sacramento State's [COVID-19 page](#). We will be following those policies in this classroom. Vaccines are required for everyone on campus except those who have been granted a religious or medical exemption per the [CSU's COVID-19 vaccination requirement](#). Masks are NOT required at this point but are recommended indoors. Please respect your fellow students' decision to mask or not mask. You can schedule a vaccine at [My Turn California](#) and find out more about vaccines and booster eligibility on the [CDC website](#). Remember that COVID-19 is still a threat, even for those who are vaccinated and boosted. Please practice self-care, monitor your health for any possible symptoms of COVID-19, and contact a health care provider immediately should you believe you may be infected.

Attendance: Do not come to class if you have COVID-19 symptoms or test positive. COVID-19 tests and safety supplies are available at many locations around campus, including the library and student union. The University will continue to offer free testing to students who are symptomatic through [Student Health and Counseling Services](#). To increase safety on campus, you are required to report a positive COVID-19 test. You will find a confidential reporting form on the [Student Affairs COVID-19 web page](#). Everyone who tests positive, regardless of vaccination status, is required to stay home for at least 5 days. You should stay home for up to 10 days if your symptoms are not resolved or you continue to test positive. If you come into contact with someone who has tested positive for COVID-19, please refer to this [flowchart](#).

If you need to isolate, please notify me immediately.

- o If you are isolating and not ill, I expect you to stay up to date with your academic work remotely as best you can. Checking in with me for assignments will be your responsibility.
- o If you are ill, please contact me as soon as you are well so we can work together to catch you up with the rest of the class.
- o You will find the latest updates to academic continuity during COVID-19 [here](#).

Flexibility: The degree to which COVID-19 will impact the Sacramento State campus this fall is hard to predict. Patience and flexibility on all our parts will still be necessary as we navigate COVID-19 -related absences. Communicating with me in a clear and timely manner will help you stay on track academically and help all of us stay healthy.

Commitment to Integrity:

As a student in this course (and at this university) you are expected to maintain high degrees of professionalism, commitment to active learning and participation in this class and also integrity in your behavior in and out of the classroom.

Sac State's Academic Honesty Policy & Procedures:

“The principles of truth and honesty are recognized as fundamental to a community of scholars and teachers. California State University, Sacramento expects that both faculty and students will honor these principles, and in so doing, will protect the integrity of academic work and student grades.” Read more about Sac State's Academic Honesty Policy & Procedures at the following website: <http://www.csus.edu/umannual/student/stu-0100.htm>

Definitions: At Sac State, “cheating is the act of obtaining or attempting to obtain credit for academic work through the use of any dishonest, deceptive, or fraudulent means.” **Plagiarism** is a form of cheating. At Sac State, “plagiarism is the use of distinctive ideas or works belonging to another person without providing adequate

acknowledgement of that person's contribution." Source: Sacramento State University Library Note: Any form of academic dishonesty, including cheating and plagiarism, may be reported to the office of student affairs.

Understand When You May Drop This Course:

It is the student's responsibility to understand when he/she need to consider disenrolling from a course. Refer to the Sac State Course Schedule for dates and deadlines for registration. After this period, a serious and compelling reason is required to drop from the course. Serious and compelling reasons include: (a) documented and significant change in work hours, leaving student unable to attend class, or (b) documented and severe physical/mental illness/injury to the student or student's family. Under emergency/special circumstances, students may petition for an incomplete grade. An incomplete will only be assigned if there is a compelling extenuating circumstance. All incomplete course assignments must be completed by the department's policy.

Equal Access:

Sacramento State is committed to ensuring an accessible learning environment where course or instructional content are usable by all students and faculty. If you believe that you require disability-related academic adjustments for this class (including pregnancy-related disabilities), please immediately contact Services for Students with Disabilities (SSWD) to discuss eligibility. A current accommodation letter from SSWD is required before any modifications, above and beyond what is otherwise available for all other students in this class will be provided. Please be advised that disability-related academic adjustments are not retroactive. SSWD is located on the first floor of Lassen Hall 1008. Phone is 916-278-6955 and e-mail is sswd@csus.edu. For a complete listing of services and current business hours visit <https://www.csus.edu/student-affairs/centers-programs/services-students-disabilities/>

Inclusivity:

Students in this class are encouraged to speak up and participate in person, online if needed, and/or discussion posts. Each of us must show respect for each other because our class represents a diversity of beliefs, backgrounds, and experiences. I believe that this is what will enrich all of our experiences together. I recognize that our individual differences can deepen our understanding of one another and the world around us, rather than divide us. In this class, people of all ethnicities, genders and gender identities, religions, ages, sexual orientations, disabilities, socioeconomic backgrounds, regions, and nationalities are strongly encouraged to share their rich array of perspectives and experiences. If you feel your differences may in some way isolate you from our classroom community or if you have a specific need, please contact me early in the semester so that we can work together to help you become an active and engaged member of our class and community. *This text was adapted from CSU Chico and Winona State University's posts.*

Basic Needs Support

If you are experiencing challenges with food, housing, financial, or other unique circumstances that are impacting your education, help is just a phone call or email away! The CARES office provides case management support for any enrolled student. Email the CARES office at cares@csus.edu to speak with a case manager about the resources available to you. Check out the [CARES web page](#)

Student Health and Counseling Services

Your physical and mental health are important to your success as a college student. Student Health and Counseling Services (SHCS) in The WELL offers medical, counseling, and wellness services to help you get and stay healthy during your time at Sac State. SHCS offers: Primary Care medical services, including sexual and reproductive healthcare, transgender care, and immunizations; urgent care for acute illness, injuries, and urgent counseling needs; pharmacy for prescriptions and over-the-counter products; mental health counseling, including individual sessions, group counseling, support groups, mindfulness training, and peer counseling; athletic training for sports injury rehabilitation; wellness services, including nutrition counseling, peer led health education and wellness workshops,

and free safer sex supplies; violence and sexual assault support services. Most services are covered by the Health Services fee and available at no additional cost.

[Title IX](#)

The University requires faculty and staff to report any personal disclosures of sexual misconduct including rape, dating/domestic violence and stalking to the Title IX Coordinator. Students who do not wish to report their experience to me or the Title IX Coordinator may speak to someone confidentially by contacting Student Health and Counseling Services.

Accessibility/Equity: The goal for all of our students is for access to all information and remove as many barriers as possible to learning. If you feel that you have difficulty accessing the information for WHATEVER reason, please talk to me. We have ways of lending technology (through IRT), helping with disabilities and gaining accommodations (SSWD), and emergency needs for housing, food, etc. If it doesn't fall into those categories, please talk to me anyways: we can figure it out.

[Other Resources](#)

Testing Center: <https://www.csus.edu/student-affairs/centers-programs/testing-center/>

Library: <https://library.csus.edu/>

Services to Students with Disabilities: <https://www.csus.edu/student-affairs/centers-programs/services-students-disabilities/>

Student Health and Counseling Services at The WELL: <https://www.csus.edu/student-life/health-counseling/>

Peer & Academic Resource Center: <https://www.csus.edu/student-affairs/centers-programs/peer-academic-resource/>

Student Academic Success and Education Equity Programs: <https://www.csus.edu/student-affairs/retention-academic-success/>

Crisis Assistance and Resource Education Support (CARES): <https://www.csus.edu/student-affairs/crisis-assistance-resource-education-support/>

Knowledge and Skills Acquisition (KASA) For Certification in Speech-Language Pathology

CSAD 110 Physics of Sound and Phonetics.

This course has been designed to be in direct support of the following American Speech-Language Hearing Association (ASHA) 2017 Knowledge and Skills Acquisition for certification in Speech-Language Pathology:

Standard IV-A

- The student will demonstrate prerequisite knowledge of the physical sciences.

Standard IV-C: Speech, Language, Hearing, Communication, and Swallowing Disorders and Differences

- The student will demonstrate the ability to analyze, synthesize and evaluate knowledge re: phonology, articulation disorders (including the etiologies, characteristics, and anatomical physiological, acoustic, psychological, developmental, linguistic, and cultural correlates.)
- The student will demonstrate the ability to analyze, synthesize and evaluate knowledge re: voice and resonance disorders (including the etiologies, characteristics, and anatomical physiological, acoustic, psychological, developmental, linguistic, and cultural correlates.)
- The student will demonstrate the ability to analyze, synthesize and evaluate knowledge re: receptive and expressive language disorders (phonology, morphology, syntax, semantics, pragmatics, prelinguistic communication, and paralinguistic communication) in speaking, listening, reading, writing, and manual modalities (including the etiologies, characteristics, and anatomical physiological, acoustic, psychological, developmental, linguistic, and cultural correlates.)

Standard IV-B: Basic Human Communication Processes

- The student will demonstrate the ability to analyze, synthesize and evaluate knowledge re: acoustic bases of human communication.
- The student will demonstrate the ability to analyze, synthesize and evaluate knowledge re: linguistic bases of human communication.