



California State University, Sacramento

Department of Communication Sciences and Disorders

UNDERGRADUATE SYLLABUS & COURSE OUTLINE

Semester/Year: Fall 2021	Course: CSAD 110 Physics of Sound and Phonetics.	Section: 02
Meeting Days: Monday/Wednesday	Meeting Times: 1:30 PM-3:20 PM	Location: ZOOM Online Passcode: 110FALL21
Instructor: Keith Haberstock, M.S. CCC- SLP	Email: keith.haberstock@csus.edu	Phone: 916-832-0745
Office Location: N/A	Office Hours/Appointments: M/W 3:20-4:00 https://csus.zoom.us/j/9774626631 By e-mail appointment request	

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

This is an undergraduate course generally taken by Junior level students in the Fall. It is a requirement for the bachelor's degree in CSAD and for acceptance into the graduate 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

CSAD-110 COURSE LEARNING OBJECTIVES:

1. Identify speech and acoustic analysis materials used to assess certain types of disorders.
2. Explain the interconnectedness of language, phonetics, and speech production.
3. Effectively explain the relationship between the articulatory features and acoustic features of specific speech sounds.
4. Analyze spectrograms of vowels & consonants within words & phrases.
5. Transcribe typical speech sounds using the International Phonetics Alphabet (IPA).
6. Describe the features of articulatory phonetics along with clinical and research methods in evaluating and treating articulation disorders
7. Transcribe both typical and atypical productions of the sounds of American English during live transcription exercises using IPA notation.

CSAD-110 SPECIFIC STUDENT LEARNING OUTCOMES/MODULE OBJECTIVES:

1. Students will be able to identify the physical and perceptual properties of the production of specific sounds.
2. Students will be able to both 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 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 correlates 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 identify and transcribe phonemic versus phonetic contrasts as well as the nature of sound variation in speech production.
9. Students will label basic anatomy and physiology of the speech mechanism.
10. Students will describe the basic process of early articulation and phonology development.
11. Students will explain the difference between an articulation approach and a phonological approach evaluating and treating speech disorders.
12. Students will discern between speech differences and a disorders based on an understanding of cultural pronunciation differences.
13. The student will be able to accurately describe the theory and practice of physiologic, psychoacoustic, acoustic and perceptual phonetics.

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.

Course Module Objective:	Components Indicating Competence:	Grades Received
1	Quiz 1,2, & 3; Lab 1; Exam 1	
2	Quiz 3; Exam 1; Spectrogram	

Course Module Objective:	Components Indicating Competence:	Grades Received
3	Exam 1	
4	Lab 2	
5	Quiz 1, 2, & 3; 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:

NO TEXTBOOKS ARE REQUIRED FOR THIS COURSE. ALL TEXTBOOK CHAPTERS ARE PROVIDED IN PDF FORMAT WITHIN THE CANVAS MODULES.

Small, Larry. (2020). *Fundamentals of Phonetics: A Practical Guide for Students*, Fifth Edition. 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 & Wilkins.

Online Resources:

Canvas

Most of the handouts and materials for this class will be available on Canvas.

Course Requirements/Components:

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

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 in class. These assignments may be discussed in class but individual feedback is limited unless you sign up/schedule an office visit with the graduate teaching assistant or 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. 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 (10 points each to total 30 points)

There will be three 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 but the write-up of the lab should be done individually.** Complete instructions will be available in the assignment box on Canvas.

Spectrogram (55 points): Students will be given one spectrogram of a sentence at the beginning 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.

Late Labs & Spectrograms: These may be turned in late; however, 10 points will be deducted for every day late (including weekend days) up to 50% of total points.

Grading Policy:

The instructor will not reply to emailed requests to “bump up” a grade. *Note:* For more information about grading at Sac State, visit the academic policies and grading section of the university catalog. There will be no additional opportunities for “extra credit” work. There are bonus questions added to some of the exams. Additionally, full credit will be awarded for completion of the chapter assignments (see above).

Your final Grade will be computed as follows:

Assessment	Points	Percentage of Total Points (approx.)
Assignments	65	10%
3 Quizzes	30	5%
4 Exams	400	62%
2 Lab Reports	100	15%
Spectrogram	55	8%
TOTAL POINTS	650 points	100%

Letter grades will be computed as a % of points earned out of a total of 650 points are assigned according to the following scores:

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

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.* If you are unable to attend a class I need to be informed by you before class begins. If you arrive to the virtual class late, please enter quietly and make certain your microphone is on mute. This is a very lecture heavy class with difficult concepts and needed practice. I have found that students who have three or more absences typically receive a final course grade below C. I will ALWAYS offer time at the beginning of each lecture to answer questions regarding previously covered material. Following each class period, I expect you to be reading and studying the lecture material so this will allow you time for confirmation of ideas or clarification. I will be posting recorded lectures but will not be available to answer questions that were covered in a lecture you missed. Please communicate with fellow students to get notes, explanations, etc. as needed.

E-MAIL: I check emails Monday through Friday during the school year between the hours of 8:00 A.M.-5:00 P.M. Thus, for 45 hours a week, I answer email and will do my best to reply within 1-2 days. I do not answer emails on weekends or during vacations. Any emails, which come to me during vacations unrelated to letters of recommendation, will be answered during the first week of the next semester.

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.

Student Concerns/Course Accommodations: Any student who does not understand or accept the contents or terms of this syllabus must notify the instructor in writing within one week of receiving this syllabus to schedule a meeting to discuss the student's concerns. Any student that requires course accommodations based on documentation provided by Campus Services for Students with Disabilities must provide required documentation from Students with Disabilities within one week of receiving this syllabus and before examinations (if appropriate).

TENTATIVE Course Schedule/Outline:

<u>Week</u>	<u>Date</u>	<u>Topic</u>	<u>Readings/Practice</u>
1	Aug 30	Introduction: Course Overview Language, Phonetics and Speech Production	Assignment 1: Log on to Canvas and see instructions for Assignment 1 (Due Sept 8)
	Sept 1	Acoustics 1 and 2: Simple Harmonic Motion, Complex Waves, etc.	Reading: Raphael, Chapter 2: pp. 17-29
2	Sept 6	LABOR DAY HOLIDAY	
	Sept 8	Quiz #1 Acoustics 2 & 3: Physical and Perceptual Properties	Reading: Raphael, Chapter 2: pp. 29-37 Assignment 1 Due
3	Sept 13	Acoustics 3: Physical and Perceptual Properties Acoustic Analysis/Measurement Techniques	Reading: Raphael, Chapter 13: pp. 276-285 Raphael, Chapter 14: pp. 287-297
	Sept 15	Quiz #2 Resonance & Source Filter Theory	Reading: Raphael, Chapter 2: pp. 37-39 Raphael, Chapter 5: pp 96-98
4	Sept 20	Lab 1 (Class and Home project) Resonance & Source Filter Theory	
	Sept 22	Quiz #3 Acoustics of Vowel Production	Reading: Raphael, Chapter 5: pp. 93-104
5	Sept 27	Front Vowels, Back Vowels, Diphthongs and Formant Transitions	Reading: Raphael, Chapter 5: pp 104-112 Lab 1 Due
	Sept 29	Phonetic Sciences (<i><u>Not on exam 1</u></i>)	Reading: Small, Chapter 1
6	Oct 4	Lab 2: Acoustics Lab	
	Oct 6	Lab 2: Acoustics Lab <i>Review for Exam 1</i>	
7	Oct 11	Exam 1	
	Oct 13	Linguistic Phonetics: Speech vs. Language and Spelling vs. Sound	Reading: Small, Chapter 2: pp 9-18
8	Oct 18	Linguistic Phonetics (cont.): Language Systems, Morphology, Phonology Phonemes vs. Allophones/Min Pair	Reading: Small, Chapter 2: pp 19-20 Small, Chapter 2: pp 30-31 Assignment 2-1 (due Oct 26) Assignment 2-2 items #1 & #2 (due Oct 25)
	Oct 20	Phonology Phonotactics: Syllables, Lexical Stress, Exercises in Stress	Reading: Small, Chapter 2 pp 20-25 Small, Chapter 2 pp 25-34 Assignment 2-2 Items #3 <u>through</u> #8 (due Oct. 25) Lab 2 Due

<u>Week</u>	<u>Date</u>	<u>Topic</u>	<u>Readings/Practice</u>
9	Oct 25	Speech Production Systems	Reading: Small, Chapter 3 Assignments 2-1 & 2-2 Due
	Oct 27	Exam 2	
10	Nov 1	Vowels Front Vowels	Reading: Small, Chapter 4 Assignment 4-1 (due Nov 17)
	Nov 3	Back and Central Vowels r-Colored Vowels & Diphthongs	Assignment 4-2 (due Nov 17) Assignment 4-3 (due Nov 17) Assignment 4-4 (due Nov 17)
11	Nov 8	Classification Systems of Consonants Place, Manner, Voicing Distinctive Features	Reading: Small, Chapter 5 pp 109-143 Assignment 5-1 and 5-2 (due Dec 6)
	Nov 10	Con't) Classification Systems Place, Manner, Voicing Distinctive Features	
12	Nov 15	Stops, Nasals, Fricatives and Affricates	Reading: Small, Chapter 5 pp 143-154 Assignment 5-3, 5-4, and 5-5 (due Dec 6)
	Nov 17	Approximant Consonants: Glides and Liquids <i>Review for Exam 3</i>	Assignments 4-1 through 4-4 Due
13	Nov 22	Exam 3	
	Nov 24	Independent Study-NO Lecture	Work on Spectrograms ☺
14	Nov 29	Acoustics: Resonant Consonants	Reading: Raphael: Ch. 6, pp. 114-123
	Dec 1	Non Resonant Consonants	Reading: Raphael: Ch. 6, pp. 123-135
15	Dec 6	Non Resonant Consonants	Assignment 5-1 through 5-5 Due
	Dec 8	Finish Lecture Spectrogram Review	
TBA		Final Exam	Spectrograms Due

Online Learning

For additional information, please review the [CSAD Handbooks](#) website

<https://www.csus.edu/college/health-human-services/communication-sciences-disorders/student-resources.html>

Zoom/ Online Instruction privacy and relevant rights and responsibilities:

Any time that a class session is recorded during the COVID-19-related Remote Instruction Period, students will be notified. If students do not want their likeness during class participation included in the recorded class session, they may elect to not participate via video recordings. Recordings will be available for viewing during the Remote Instruction Period subject to the following:

Only students enrolled in the subject class during the Remote Instruction Period may view the recording.

- Students may not post or use the recordings in any other setting (e.g., social media) for any purpose. Students who violate this will be subject to student discipline, up to and including expulsion.
- Federal and California law as well as University policies protecting intellectual property rights and use of instructional materials (including any recordings of class sessions) remain in effect during the Remote Instruction Period.
- If faculty have any plan to use the recording for a different class in the future, the faculty member will need written FERPA consent from those students in the current class who are identifiable in any of the recordings. A FERPA consent form signed by all students in the course will also be needed if the recordings are made available to others beyond the classroom on a nonsecure digital platform.

Attitudes & Technical Skills Required

You will find that the following attitude will significantly contribute to your success in this online class:

- A positive attitude towards technology
- An open mind towards online education
- Willingness to share your experiences with others
- Strong analytical and critical thinking skills for when you "get stuck"
- Resourcefulness - don't be afraid to click on links and explore and ask questions
- Time management

Online learning requires only basic technical skills:

- Be competent with file management (for example, creating a folder on your desktop, moving files from one location to another, finding a saved file)
- Possess internet navigation skills
- Update your Internet browser
- Send and receive email
- Create and save documents (Word, PowerPoint, Excel or HTML)
- Toggle between two open software applications on your computer
- Copy text from a word processing program and paste them into another program

Technical Assistance

Seek help when you can't access Canvas or class materials.

- For technical assistance, contact the IRT Help Desk. Visit AIRC 2005 during [open hours](#) to speak with the IRT Service Desk Team, or call (916)278-7337. [IRT website.](#)
- For assistance with course materials, contact your instructor

Spam and Phishing Scams

- Learn how to stay safe and protect yourself from hackers who may try to access your personal information: [Don't Fall for a Phishing Scam](#)
- Use anti-virus, anti-spyware, and anti-malware software. [Sac State's Software and Tools](#) available for download.
- Use pins and passwords to secure your computer and devices- don't share your password with anyone. Use strong passwords that include a combination of letters and numbers that no one can guess.

Canvas Student App

Canvas is fully functional on many types of smartphones and tablets. Compatible devices include platforms such as iPhone/iPad/iPod Touch, and Android. However, it is recommended that you do not solely rely on one of these devices to complete your online course work. Access to a computer is still needed for many online activities. Visit the [Mobile section](#) of the [Canvas Guides](#) website for more information.

Additional Information

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: <https://www.csus.edu/umannual/student/stu-100.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.

Department Policy on Use of APA format

The Department of Communication Sciences and Disorders requires the use of the APA format and style. All students are required to reference the APA manual. All assignments are to be composed using APA format and style unless otherwise noted.

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. Information for students regarding drop and withdrawl from classes is provided here:

<https://www.csus.edu/academic-affairs/internal/internal/documents/drop-and-withdrawal-policy.pdf>

Inclusivity:

Students in this class are encouraged to be active participants in all aspects of the course, including but not limited to lectures, synchronous and asynchronous activities, discussion posts, etc. Each of us must show respect for each other, as our class represents a diversity of beliefs, backgrounds, and experiences. This enriches all of our learning experiences together. Our individual differences 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 the instructor early in the semester. Your instructor will work with you to ensure that you become an active and engaged member of our class and community.

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.

Services to Students with Disability (SSWD)

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, please immediately contact Services for Students with Disabilities (SSWD) to discuss eligibility. It is the student's responsibility to provide documentation of disability to SSWD and meet with a SSWD counselor to request special accommodation before classes start. 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. SSWD is located in Lassen Hall 1008 and can be contacted by phone at (916) 278-6955 (Voice) or (916) 278-7239 (TDD only) or via email at sswd@csus.edu.

Crisis Assistance & Resource Education Support (CARES)

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.

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.

Other Resources

- The Office of Student Affairs maintains a list of campus resources/centers: <https://www.csus.edu/center/>
- 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/>
- CHHS Student Success Center: <https://www.csus.edu/college/health-human-services/student-success/>
- Reading & Writing Center: <https://www.csus.edu/undergraduate-studies/writing-program/reading-writing-center.html>
- 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/>
- SMART Thinking (tutoring resource): <https://www.csus.edu/student-affairs/centers-programs/degrees-project/internal/documents/smarthinking.pdf>

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.