CSAD 110: Physics of Sound and Phonetics Fall 2017
Section 3

Time:  M/W 1:00-2:50               Location:  Shasta Hall 240
Instructor:  Keith Haberstock, M.S., CCC-SLP   Phone:  (916) 832-0745 (text only please)
Office: Shasta Hall 256   Email:  keith.haberstock@saclink.csus.edu
Office hours:  M/W 2:50-3:20

COURSE DESCRIPTION:
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.
Prerequisites:  CHDV 30, DEAF 51, PSYC 2, and STAT 1
Corequisite(s):  CSAD 111

COURSE OBJECTIVES:
1. Introduce the student to acoustic analysis and measurement
2. Introduce the student to the interconnectedness of language, phonetics, and speech production
3. Introduce the student to the relationship between the articulatory features and acoustic features of specific speech sounds
4. Introduce the student to spectrogram analysis of vowels, consonants, words, and phrases
5. Introduce the student to the International Phonetics Alphabet (IPA)
6. Introduce the student to articulatory phonetics along with clinical and research methods in evaluating and treating articulation disorders--Use of the IPA for transcription will be emphasized and extensive practice of both normal and abnormal productions of the sounds of American English will be provided.

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 MATERIALS:
Required Texts & Audio CD:


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. Most of the ones I browsed at the Hornet Bookstore were around $20.

*USB Flash/Jump Drive*
At least 128 mb so you can save sound files and images for lab reports. You should be able to find 8GB for less than $20.

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

DESCRIPTION OF COURSE REQUIREMENTS:
SacCT (Blackboard): This course is embedded into a Web Course format. You *must* have an active Sac Link account and use CSUS's SacCT (Blackboard) 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 Web CT.

**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.

**Your final Grade will be computed as follows:**

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignments</td>
<td>65</td>
</tr>
<tr>
<td>3 Quizzes</td>
<td>30</td>
</tr>
<tr>
<td>4 Exams</td>
<td>400</td>
</tr>
<tr>
<td>2 Lab Reports</td>
<td>100</td>
</tr>
<tr>
<td>Spectrogram</td>
<td>55</td>
</tr>
</tbody>
</table>

**Total:** 650 Points

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

- 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

**MISCELLANEOUS CLASS POLICIES:**

**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. While I will not take roll during each class session, I may pass out a roll sheet on occasion. If you arrive late, please enter quietly and take your seat without disturbing the class. Let me know after class that you arrived so that I can mark your attendance as late, rather than absent. Please note that students who do not sign the roll sheet on the days it is circulated and have not emailed or called me prior to class will be counted as absent. Three or more of these absences will result in your final course grade being lowered by one letter grade.

**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).

**Learning Outcomes Competencies: (CSAD 110):**
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.
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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.
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13. The student will be able to accurately describe the theory and practice of physiologic, psychoacoustic, acoustic and perceptual phonetics.

<table>
<thead>
<tr>
<th>Course Learning Outcome</th>
<th>Components Indicating Competence</th>
<th>Grades Received</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Quiz 1, 2, &amp; 3; Lab 1; Exam 1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Quiz 3; Exam 1; Spectrogram</td>
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<tr>
<td>3</td>
<td>Exam 1</td>
<td></td>
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<tr>
<td>4</td>
<td>Lab 2</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Quiz 1, 2, &amp; 3; Exam 1</td>
<td></td>
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<tr>
<td>6</td>
<td>Lab 2, Exam 1</td>
<td></td>
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<tr>
<td>7-8</td>
<td>Exams 3 &amp; 4</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Exam 2</td>
<td></td>
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<tr>
<td>10-11</td>
<td>Exams 3 &amp; 4</td>
<td></td>
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<tr>
<td>12</td>
<td>Exams 3 &amp; 4</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Exam 4</td>
<td></td>
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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) 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.