

Basic Speech Science (Spring 2008)
Com. Sci. 233 (4 credits)

Monday, Wednesday Lectures 10:40-12:30

Lectures: 1700 N Broad

Labs: Weiss Hall 149

Lab Mon. 12:45-2:15

Lab Wed. 12:45-2:15

Lab Fri. 10:40-12:30

Dr. Rena Krakow

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Rm. 217 Weiss Hall

Office Hours: Wed 2:30-4:00 and by appt.

Prerequisites: Communication Sciences 207 (Phonetics), 208 (Phonology), Physics C067 (Acoustics)

Course Description:

Speech Science examines the anatomy and physiology of speech production, the acoustic characteristics of speech, and the processes by which listeners perceive speech. Although the focus is on normal structure and function, students will learn about speech disorders and differences that can be examined using the methods and instruments of Speech Science. This course includes lectures, class discussions of readings, and laboratory work. There are four exams and a set of lab reports.

Required Textbooks:

Raphael, Borden, Harris. (2008). *Speech Science Primer*. 5th Edition. Baltimore, MD: Lippincott, Williams and Wilkins.

Ladefoged, P. (1995). *Elements of Acoustic Phonetics*. 2nd Edition. Chicago, IL: Univ. of Chicago.

Recommended Classic Articles (Blackboard):

Liberman, Cooper, Shankweiler, & Studdert-Kennedy. (1967). Perception of the speech code. *Psychological Review*, 74, 431-461.

Monsen, R.B. (1976). Normal and reduced phonological space: The production of English vowels by deaf adolescents. *Journal of Phonetics*, 4, 189-198.

Policy on Student Responsibility:

This course requires your attendance at lectures and labs, as well as completion of assignments and exams on the assigned dates and times. Only under extraordinary circumstances will make-ups or extensions on assignments be allowed. Note that labs, like lectures, will begin promptly at the assigned times. You will not be held responsible for material that appears in your textbooks that is not covered in class. However, you will have difficulty doing well in this class if you do not read along as we progress. Lectures will include material from the textbooks, several articles, and the supplementary reading list. The supplementary list is not required reading, but reading that you should consider doing if you are having trouble with the required material or with the lectures. You are responsible for everything covered in class. All work done by students in this class (exams, lab reports) is to be done independently by each student. Students are expected to familiarize themselves with the university policy on cheating and plagiarism, and to seek help from the professor if faced with difficulties with the course material.

Grading:

I take the overall mean of the three or four exams that you take (the third exam is optional). I grade the labs Pass/Fail and deduct 3 points from your overall mean for each grade of F on a lab and I add 4 points to your overall mean for having no Fs on any lab report. Then I use the number to determine your letter grade: A=93-100;A-=90-92;B+=87-89;B=83-86;B-=80-82;C+=77-79;C=73-76;C-=70-72;D+=67-69;D=63-66;D-=60-62;F=<60.

STANDARD IIIC Basic Human Communication and Swallowing Processes (including their biological, neurological, acoustic, psychological, developmental, and linguistic and cultural bases)

Outcomes	Areas	Evidence
Students will demonstrate mastery of basic acoustics both in the time and frequency domains	1	1,2,3
Students will explain the acoustic characteristics of speech and listeners' use of those characteristics to process the speech signal	3,6	1,2,3
Students will describe the anatomy and physiology of the speech production mechanism, including respiratory, phonatory, and articulatory structure and function	4,5	1,3
Students will demonstrate the ability to use technology to analyze speech and uncover objective evidence of its acoustic/physiological organization	1,3,6	2,3
Students will demonstrate familiarity with a variety of instruments and programs used to analyze speech including its acoustic, physiologic, and aerodynamic properties	2,3,4,5	1,2,3

STANDARD IIID The applicant must demonstrate specific knowledge of the nature of speech, language, hearing, and communication disorders and differences and swallowing disorders, including the etiologies, characteristics, anatomical/physiological, acoustic, psychological, developmental, and linguistic and cultural correlates

Outcomes	Areas	Evidence
Students will demonstrate an understanding of how laboratory measures can be used to gain insight into the nature of speech disorders	3,4,5,6	1,3
Students will explain how laboratory measures can be used to gain insight into the speech patterns of ESL speakers as well as the variety of dialects of American English.	2,3	1,2,3
Students will explain how laboratory measures can be used to better understand the nature of a speech disorder	3,4,5,6	1,2,3
Students will demonstrate an understanding of the role of lab equipment in diagnostic and therapeutic settings as well as in measurement of outcomes	3,4,5,6	3

AREAS

1. Basic Acoustics
2. Articulation and Phonetics/Phonology
3. Acoustics and Resonance (Source and Filter)
4. Anatomy and Physiology of the Vocal Tract and Larynx
5. Anatomy and Physiology of the Respiratory System
6. Speech Perception

EVIDENCE

1. Exams
2. Lab Reports
3. Classroom / Lab Discussions

Class Meetings			Readings
Jan	23	Introduction to Speech Science	
	28-30	Basic Acoustics	Ladefoged Chs. 1-4 R,B,HCh.3
		Speech Acoustics	Ladefoged 5, 7
Feb	4-6	Instrumentation (Acoustics & Perception) Sampling, and Quantization	R,B,HCh.12 Ladefoged Ch. 9
	11-20	Articulation and Resonance	
	25	TEST 1	R,B,H Chs. 6-7
	27	Speech Perception (Acoustic Cues)	R,B,HCh.10
Mar	3	Acoustic Cues cont'd	
	5-17	Speech Perception (Strategies, Models and Theories)	R,B,HCh.11 Liberman et al.
	19	TEST 2	
	24-26	Respiration	R,B,H Ch. 4 pp.70 - 82
	31	Phonation, The Larynx	R,B,HCh.5
Apr	2-7	Phonation, The Larynx cont'd	
	9	TEST 3 (Optional)	
	14-16	Instrumentation for Physiological Study	R,B,HCh.13
	21	Video Demos of Phys. Instrumentation	ASA productions
	23-30	Speech Disorders	Monsen
May	5	Review for final	

"We usually take for granted our ability to produce and understand speech and give little thought to its nature and function just as we are not particularly aware of the action of our hearts, or other essential organs." (Denes & Pinson, 1993, p. 1)

Plagiarism/Cheating

In the Department of Communication Sciences, our standards of scholarship include strict regulations concerning certain behaviors that will not be tolerated. These behaviors, cheating and plagiarism, run counter to our goals of graduating students of integrity with solid academic and clinical records achieved through their own efforts in conjunction with the efforts of our faculty. Lack of awareness of what constitutes cheating or plagiarism will not be accepted as an excuse for such behavior since it is the responsibility of every entering student to familiarize him or herself Temple's policy on academic honesty prior to beginning our program. It is the policy of the Communication Sciences Department to give a student a grade of F for the course in which he/she is found to have cheated/plagiarized. Students who cheat/plagiarize may also be reported to the University Disciplinary Committee, which could lead to suspension/expulsion from the university.

Program Concerns

The student may feel uncomfortable about some aspects of the program or possibly with one of the faculty members. Our best advice is that such matters should be brought to the attention of the faculty member(s) who can be most helpful. In most cases, this will be your advisor, but it might be another faculty member with whom you feel especially comfortable. We will make every attempt to find a constructive solution to your difficulty.

Criticisms of the program are welcome. We are constantly studying and revising our program and your input is highly valued. Issues that remain unresolved by your advisor or another faculty member can be brought to the attention of the Chairperson of the Department or the Student-Faculty Committee (see below). All appeals of grades must begin at the department level with the faculty member to whom you are appealing the grade. If the dispute is not resolved the student may take her/his appeal to the Department Chairperson. If the Department Chairperson is not able to resolve the dispute, the Chairperson appoints a committee of faculty members to resolve the dispute. If the dispute is still not resolved, the appeal proceeds to the college level. Student appeals must commence within 30 days following the alleged dispute.

The Student-Faculty Committee is comprised of at least two students selected by their peers and two faculty members selected by the students. The students and faculty on the committee meet at least once a semester (more often, if need be) to discuss any concerns that students have about the program as well as any concerns the faculty have. The committee attempts to resolve any problems in a diplomatic and sensitive fashion.

Personal Concerns

It is not at all uncommon for students in college or graduate school to find that life stresses can get in the way of their studies and/or their enjoyment of life. We have seen students go through a variety of very difficult issues while in our program including the death of a loved one, the break-up of a relationship, severe illness, etc. We do our best to provide a sympathetic ear and whatever practical help we have at our disposal. But we are not experts in these kinds of issues. Fortunately, ***The Temple Community Counseling Center*** is available to our students and offers individual and family therapy and several career-related services to all members of the Temple community and their families. The clinic provides individual, couple and marriage counseling, and family therapy on a sliding fee schedule.

These services are also offered for a fixed fee: five individual, career counseling sessions; vocational testing; resume writing; job hunting; and interviewing. Located on the second floor of Weiss Hall, the clinic is staffed by doctoral students in counseling psychology. All staffers have a master's degree, plus experience in the mental health field. For information or an appointment, call Denise Walton at 204-1591.

Disability Resources and Services

Temple's DRS is the primary department authorized as a support service for students with disabilities at Temple University. To encourage participation in college life by students with disabilities, DRS offers information and services so each can reach potential through achieving educational goals. DRS arranges academic adjustments and accommodations for students at the University as mandated under the Americans with Disabilities Act and Section 504 of the Rehabilitation Act of 1973.

Frequently requested services include:

- Academic adjustment consultation
- Test proctoring and note-taker services
- Adaptive computer accommodations and training
- Sign language interpreting and captioning assistance
- Reader service and attendant referral suggestions
- Scholarship, internship and career information
- Courtesy services available for students with temporary disabling conditions