**College of Health and Human Services**

**Department of Communication Sciences & Disorders**

**CSD 376:  Hearing Science**

**3 credit hours**

**Fall, 2017**

**Instructor:** Ishan Bhatt, PhD

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**Time:** Aug 28– Dec 14 2017

Tuesdays and Thursdays

 4:00 PM – 5:15 PM

**Room:** Health Professions, Rm 101

**Office Hours:** By appointment only

**Course prerequisites**

None

**Course purpose**

The purpose of this course is to introduce students to the foundation of hearing science, and to prepare them for future coursework in the related fields.

**Course description**

Introduction to normal hearing processes, focusing on the anatomy and physiology of the auditory system, acoustics of sound, and psychoacoustics.

**Learner** **Outcomes**

You will be able to:

* + describe the basic physical attributes of sound.  (Standard III-A)
	+ describe simple physical systems used in the processing of sound. (Standard III-A)
	+ describe the anatomy and physiology of the peripheral auditory system.  (Standard III-A, Standard III-B)
	+ describe ways in which simple sounds are processed by the peripheral auditory system.  (Standard III-A, Standard III-B)
	+ describe processes that influence the human perception of sound.  (Standard III-B)

**ASHA 2014 Standards**

**Standard IV – A**

The applicant must have demonstrated knowledge of the biological sciences, physical sciences, statistics, and social/behavioral sciences.

**Standard IV – B**

The applicant must have demonstrated knowledge of basic human communication and swallowing processes, including the appropriate biological, neurological, acoustic, psychological, developmental, and linguistic and cultural bases. The applicant must demonstrate the ability to integrate information pertaining to normal and abnormal human development across the life span.

**Course Structure/Approach**

The course will generally involve lectures, classroom discussions and activities, readings, and assignments. Knowledge will be evaluated by assignments and examinations.

**Text**

Yost, W.A.  (2007).  Fundamentals of Hearing:  An Introduction,  Fifth Edition.  Academic Press:  San Diego.

**Readings**

All topics will be covered in lectures and readings from the course text. Emphasis will be placed on information covered in lectures. You will be responsible for any outside readings assigned in class.

**Lectures**

Each topic will be presented through lecture. You are required to attend classes, which will explain more fully information covered in each chapter of the text. All tests and assignments will be based on information provided by in lectures and readings.

**Outcome Measures**

1. Achieving 60% or better on tests of clinical knowledge.
2. Achieving 60% or better on class assignments of clinical knowledge.

**Evaluation Methods**

*Grades:* Grades will be based on the average of 3 exams (20% each); and lab (10%), assignments (20%) and class participation (10%). Letter grades will be assigned as follows:

            A          90-100%

            B          80-89%

            C          70-79%

            D          60-69%

            F          Below 60%

**Assessment of Learner Outcomes**

*Assignments:* Each week you will have one or more assignments to evaluate your knowledge of materials covered through the lecture. The format of these assignments is multiple choice, matching, short answer, and/or essay. You are responsible for completion of each assignment.

Assignments will become available following the class lecture to which it is pertaining. To open and work on the assignment:

* Click Assignment;
* Click the Assignment Title, for example: "Module 1, Assignment 1";
* Click Begin.

As you move from one question to the next, your answers will automatically be saved. At the top of the assignment page, you can click "Question Completion Status" to find out which answers have been completed and saved. You may enter and leave assignments as often as you would like. If you "save" the answers, the answers will be available when you reopen the assignment. When you are completely finished with the assignment and ready to turn it in, click save and submit. The assignment is turned in and ready to be graded. Once submitted, you cannot make any changes to your answers.

All assignments are due before the following class period. Assignments turned in late will automatically have 15 points deducted from the score. Assignments not submitted within one week will earn zero (0) points.

Assignments will be returned after the due date has expired and I have reviewed and graded all papers.

*Examinations:* Three examinations will be given to evaluate your knowledge of the subject matter.

* Test 1 will cover the Overview and Acoustics: The Physics of Sound.
* Test 2 will cover the anatomy and physiology of the outer, middle and inner ears.
* Test 3 will cover psychoacoustics

The format of the tests is multiple choice, matching, fill-in-the-blank, and short answer. Each exam will be available for three (3) days, opening on Saturday and closing on Monday. You may take the exam any time during the three day period. Once you open the exam, you will have two and a half (2-1/2) hours in which to complete the exam. If you do not complete the time in that time period, fifteen (15) points will be deducted from your grade. Once the exam is submitted you may not reopen it. You will only be able to take the exam one time, i.e. this course does not allow multiple attempts. Each exam is to be taken by each student individually abiding by the NAU Academic Code of Integrity (see attached). If cheating is suspected or confirmed, evaluation methods will be modified.

Any test missed will be made up during the last week of class and 20 points will automatically be deducted from the total score. The make-up test will be cumulative; that means it will include all material covered over the entire semester. The make-up exam will be primarily short answer and essay. If you miss more than one test, your grade on the make-up test will be substituted for all tests missed.

**Tests are designed to test your knowledge. Cheating will not be tolerated.** See the **NAU Academic Code of Integrity** (attached) for further explanation.

Labs: You are required to work in a team with your 4-5 classmates. The labs are designed to provide hands on learning experience to verities of concepts taught in the class.

Class Participation: More than 90% of attendance is required. Less than 90% of class attendance can result in earning an “F”. Class participation will be further evaluated by classroom behaviors and contribution of a student on the blackboard discussion.

*Course Evaluation/Extra Credit:* At the end of the semester, you will be asked to complete a course evaluation. Please complete the evaluation, and insert a snapshot of the final page to the blackboard (follow the discussion board link for the course evaluation) conforming that you completed the course evaluation successfully. If you complete the course evaluation, five (5) points will be added to one of your test grades. To receive extra credit, evidence of submitting your Course Evaluation must be submitted by **December 9th, 2017**.

**Course Policies and Procedures**

All assignments will be available following the class period during which they are assigned and will be due prior to the following class. Any assignment turned in late will automatically have 15 points deducted. Any assignment not turned in within one week will earn a zero (0).

The Course Calendar, located under Course Tools, will provide detailed information regarding the date each assignment is due, and the date each test opens and closes.

**Communication**

The best way to communicate with me is through e-mail or by scheduling a meeting.

* You can use personal e-mails (Ishan.Bhatt@nau.edu).
* You can schedule a meeting with me to meet in person.
* Keep in mind that I am your professor and expect to be treated with respect in your e-mails. I, in turn, will respond to you with respect. Guidelines to be followed when writing your e-mail include using an appropriate subject line, greeting, and salutation, and proofreading your e-mail before sending it.

**Courtesy**

* Please turn your cell phone ***off*** during class. I do recognize that there will be situations when you are expecting an URGENT call. If you *MUST* have your cell phone on during class, please inform me prior to the beginning of the class period.
* Text messaging, IMing (instant-messaging) are ***not permitted*** during class. If you are found engaging in any of these behaviors during class you will receive an immediate deduction of ten points from your ***final*** grade.
* Any use of your cell phone, laptop computer, or talk with colleague during lectures, quizzes or the final exam (regardless if the quiz/exam is take home or in-class) will result in an immediate failure for that test, with no option for a make-up.
* **Computer use is not permitted in class**.
* If you must leave class early or come in late, please make sure to tell me about it ahead of time.

**Student Work Responsibility**

You are responsible for completing all work, including assignments, discussions and tests. If you should encounter problems that interfere with or potentially interfere with your ability to fulfill the course requirements, *please notify me as soon as possible*. While I do not necessarily need to know the details of the problems, you should at least identify a “generic” contributor to the problem (e.g. health, finances, living situation, personal, etc.). In that same email, please provide three possible meeting times to meet with me to discuss the matter further.  I will confirm one of the suggested meeting times by return email. If you do not feel comfortable discussing your situation with me, contact **Student Support Services** at[**http://home.nau.edu/edsup/sss/**](http://home.nau.edu/edsup/sss/)or **523-6980.** Please do not wait until the conclusion of the semester to explain any interruptions and/or disruptions to your studies.

**NAU Student Handbook**

To become familiar with NAU rules and regulations. and NAU policies, it is recommended that you read the **NAU Student Handbook.** It is available at <http://home.nau.edu/studentlife/handbook.asp>.

**Code of Academic Integrity**

ACADEMIC DISHONESTY is a form of misconduct that is subject to disciplinary action under the Student Code of Conduct and includes the following: cheating, fabrication, fraud, facilitating academic dishonesty and plagiarism.

* Plagiarism: any attempt to pass off other's work as your own
* Cheating: any attempt to gain an unfair, hidden advantage over one's fellow students
* Fabrication: any attempt to present information that is not true
* Fraud: any attempt to deceive an instructor or administrative officer of the university

Students engaging in activity meeting the definition of academic dishonesty are subject to one of the penalties listed below.  As the faculty member, I reserve the right to assign the penalty based upon my perception of the severity of the offense.

* Assign the student extra course work.
* Require the assignment or examination to be repeated.
* Reduce the grade on the assignment or examination.
* Award zero grade on the assignment or examination.
* Require the student to drop the course.
* Award a failing grade in the course.

The complete Academic Dishonesty policy may be found at the following URL:
<http://www4.nau.edu/stulife/StudentHandbook/Appendix_G_AcademicDishonesty.htm>

**Other University Policies**

Other University Policies and their web sites are as follows:

Safe Working and Learning Environment:  [http://home.nau.edu/diversity/.](http://home.nau.edu/diversity/)

Students with Disabilities:  dr@nau.edu

<http://nau.edu/Disability-Resources/>

Institutional Review Board: <http://www.research.nau.edu/vpr/IRB/index.htm>