**UNIVERSITY OF WISCONSIN—STEVENS POINT**

**Communication Sciences and Disorders**

**Electroacoustics and Instrumentation Calibration (CSD 855), Fall 2017**

**LAB (UWSP):** Mondays 2:15 – 4:15 pm; 051

**INSTRUCTOR:** Rachel Craig, Au.D.

**Graduate Assistant:** Chelsey Ward, B.S.

**OFFICE LOCATION:** CPS 046B

**E-MAIL:** Rachel.Craig@uwsp.edu

**Prerequisites:** CSD 303 or CSD Major or Consent of instructor

**Scale:**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **UW – SP** Letter Grade | A | A- | B+ | B | B- | C+ | C | C- | D+ | D | F |
| **Percentage** | 100-92.00 | 91.99-90.00 | 89.99-88.00 | 87.99-82.00 | 81.99-80.00 | 79.99-78.00 | 77.99-72.00 | 71.99-70.00 | 69.99-68.00 | 67.99-60.00 | <60 |
| **UW – Madison** Letter Grade | A | A-B | | B | B-C | | C | C-D | | D | F |

**Attendance:**

Lecture content will be complementary to labs. Students are therefore strongly encouraged to attend all **lectures** and **labs**.

**Professionalism:**

This class is part of your training for your professional career. Professional behavior and attitude are expected. This includes, but is not limited to, respect and tolerance of others, and acting responsibly and with integrity.

For examples of Codes of Ethics for Speech and Hearing Professionals, see:

American Academy of Audiology Code of Ethics <http://www.audiology.org/resources/documentlibrary/Pages/codeofethics.aspx>

Or

American Speech-Language Hearing Association Code of Ethics

<http://www.asha.org/policy/ET2010-00309/>

**Academic Misconduct:**

Academic misconduct will not be tolerated, and the UWSP Student Misconduct procedures will be followed for any instances of academic misconduct.

**Definition of Academic Misconduct:**

From the UWSP Handbook, Chapter UWSP 14, August 2016, pages 10 - 20

<http://www.uwsp.edu/AcadAff/Handbook/CH5-6%2011-12.pdf>

UWSP 14.03 Academic misconduct subject to disciplinary action.

(1) Academic misconduct is an act in which a student:

(a) Seeks to claim credit for the work or efforts of another without authorization or citation;

(b) Uses unauthorized materials or fabricated data in any academic exercise;

(c) Forges or falsifies academic documents or records;

(d) Intentionally impedes or damages the academic work of others;

(e) Engages in conduct aimed at making false representation of a student's academic performance; or

(f) Assists other students in any of these acts.

(2) Examples of academic misconduct include, but are not limited to: cheating on an examination; collaborating with others in work to be presented, contrary to the stated rules of the course; submitting a paper or assignment as one's own work when a part or all of the paper or assignment is the work of another; submitting a paper or assignment that contains ideas or research of others without appropriately identifying the sources of those ideas; stealing examinations or course materials; submitting, if contrary to the rules of a course, work previously presented in another course; tampering with the laboratory experiment or computer program of another student; knowingly and intentionally assisting another student in any of the above, including assistance in an arrangement whereby any work, classroom performance, examination or other activity is submitted or performed by a person other than the student under whose name the work is submitted or performed.

**Students with Disabilities:**

If any student has a documented disability and requires accommodations in meeting these requirements, please see me as early as possible in the semester to discuss accommodations. Please note that I cannot apply accommodations retroactively to a class requirement that you’ve already completed. Thus, if you are unsure whether or not you need an accommodation, it is best to discuss the possibility with me beforehand, and we can then decide the best way to proceed.

**Religious Observances:**

I will accommodate religious beliefs according to UWS 22.03 if you notify me within the first 3 weeks of the semester regarding specific dates with which you have conflicts.

**Group projects: (FROM DR. BOOTHALINGAM)**

1. **Comparison of phone app-based sound level meters with a standard (class 0/1) sound level meter** 
   * 3 groups in Madison and 1 group in Stevens Point
   * Each group will evaluate at least two different phones, and compile all results into one project. So, plan accordingly with other groups so your data are compatible and easily portable between groups.
   * Present your final results as a class presentation (on 12/4/2017). At least one person from each group should present part of the presentation.
   * Presentation should have the following components:
     1. Introduction and motivation for the research project
     2. Methods used
     3. Results
     4. Discussion and conclusion
   * What am I looking for in the presentation?
     1. Display of knowledge in the area of presentation
     2. Quality of content
     3. Quality of methods (because multiple group data need to be compiled together, think about how you could homogenize your stimuli and set-up used in the project).

Different stimuli can have different effects on how phones process them, so think about what might be an appropriate stimulus for your testing.

* + 1. Quality of results (extra points for the use of appropriate statistics)

1. **Know your instruments!**
   * Groups will be randomly assigned an audiological instrument (same groups as project-1)
   * Each group will research on the instrument type and gather specific details (explained below) about a physical instrument that they have access to. For example, if your group is assigned with an audiometer, your group will research about audiometers in general, and also gather specific details about an audiometer that you can access.
   * Specific details include (but not limited to): input/output ports, functions that the instrument can perform, comparison to standard, and calibration record.
   * Present your findings as a class presentation (on 12/4/2017). At least one person from each group should present part of the presentation.
   * Presentation should have the following components:
     1. Introduction to the instrument
     2. What are its features and what does it do?
     3. Description of the specific instrument that you accessed
     4. Calibration record
   * What am I looking for in the presentation?
     1. Display of knowledge in the area of presentation
     2. Quality and clarity of content and depth of background research

**Lab schedule:**

(Five assessable labs are in bold; best four is worth 25% each for CSD 855)

|  |  |
| --- | --- |
| **Date** | **Topic** |
| 13-Sep | Introduction and exercises - frequency / logs / dB |
| 20-Sep | **Signal characterization and analysis using Praat** |
| 27-Sep | Sound level meters |
| 4-Oct | Permissible ambient noise levels |
| 11-Oct | **Digital Signal Processing (DSP)** |
| 18-Oct | Snap circuits - I |
| 25-Oct | Snap circuits – II and exercises |
| 1-Nov | No lab/project work\*\* See above\*\* |
| 8-Nov | **Multimeters** |
| 15-Nov | **Oscilloscopes** |
| 22-Nov | Overview of calibration equipment |
| 29-Nov | **Calibration of tone audiometer** |
| 6-Dec | Calibration of short duration signals – implications for AEPs and OAEs |
|  | |
| 13-Dec | **Final exam – 35%** (non-cumulative) |

**ASHA standards addressed by this course for lecture and lab (Knowledge and Skills Acquisition -- KASA):**

|  |  |  |
| --- | --- | --- |
| **Knowledge assessed through written or oral exam**  Upon successful completion of this course, the student will: | **ASHA Reference** | **Assessed through** |
| Instrumentation and bioelectrical hazards | A13 | Assignments and Exams |
| Physical characteristics and measurement of electric and other non-acoustic stimuli | A14 | Assignments and Exams |
| Universal precautions and infections/contagious diseases | A21 | Assignments and Exams |
| Principles, methods, and applications of acoustics (e.g., basic parameters of sound, principles of acoustics as related to speech sounds, sound/noise measurement and analysis, and calibration of audiometric equipment), as applicable to:  Occupational and industrial environments  Community noise  Classroom and other educational environments  Workplace environments | A23 | Assignments and Exams |
| The use of instrumentation according to manufacturer’s specifications and recommendations | A24 | Assignments and Exams |
| Determining whether instrumentation is in calibration according to accepted standards | A25 | Assignments and Exams |