



Instructor: Marie Roch

Class hours: MW, 4:00-5:15 PM, [GMCS-308](#)

Office: [GMCS-533](#). M 5:30-6:20, W 3:00-3:50, or by appointment.

email: Use my first and last name separated by a dot followed by [@sdsu.edu](#)

URL: <http://roch.sdsu.edu>

My preferred method of answering detailed questions is during office hours. E-mail works well for short questions, but should not be used for complicated ones that could be more effectively answered during office hours through the use of interactive conversation and diagrams.

*The classroom learning environment should be accessible to all. If you have a disability that requires special accommodations, please register with Student Disability Services and speak with me after class or during my office hours.*

Student Learning Outcomes:

You will master machine learning and signal processing skills. We will apply this to recognizing speech and speaker identity, but many of the skills that you will acquire are useful in many contexts such as finance, bioinformatics, control systems, etc.

Prerequisites: Data structures, some exposure to linear algebra

Text: *Speech and Language Processing*, 2<sup>nd</sup> ed., Jurafsky and Martin, Upper Saddle River, NJ, Pearson Prentice Hall 2009.

Other required materials:

Headphones for listening in lab. If you do not own a pair, I suggest buying an inexpensive set. Closed ear design is preferable as it helps to isolate the speech to which you are listening from the background noise, but you will not be using them enough to justify an expensive set.

Computing Resources:

Assignments will primarily use the dual boot computer science lab (GMCS 425) and rohan. See the FAQ on the course web page if you need an account on rohan.

**Grade Scale:**

I use coarse grading. It is very difficult to justly and systematically determine that one answer is worth  $N$  points and another is worth  $N \pm \epsilon$ . Consequently, points are assigned based upon broad categories that indicate your mastery of the concept:

- Excellent  $\rightarrow$  A+
- Good  $\rightarrow$  A
- Mostly right  $\rightarrow$  B
- Right track  $\rightarrow$  C
- Valiant effort  $\rightarrow$  some points
- Not much effort  $\rightarrow$  F

**Breakdown of grades:**

Exam I	20%
Exam II	20%
Problem Sets	30%
Reading summaries	5%
Labs	25%

**Exams:**

There will be two closed book exams. The exams are non-cumulative, but the second will build on material covered in the first. Generally, I tend to emphasize concepts and you should expect short essay questions in addition to any short answer or quantitative questions. If you cannot attend an exam, contact me *before* the exam. No make-up exams will be permitted without prior approval.

**Problem sets:**

Problem sets consist of questions and programming assignments, and are due at the *beginning* of class. Any assignments turned in after the beginning of class will be counted late. Late assignments will be accepted up to one class period after the due date with a penalty of 10% of the possible number of points.

Questions may be quantitative or qualitative in nature. For qualitative questions you are expected to give responses in grammatically correct complete sentences. For quantitative problems, you **must show your work in order to receive credit**.

Programs: Whether as part of a lab or problem set, programs must be well structured and commented. Frequently, students make their lives more difficult by simply writing the program without thinking first. The use of good program design will make your life significantly easier. In addition, an emphasis should be made on making your programs readable. Use meaningful variable names and comment as you write the program rather than adding comments at the end. If you encounter difficulties in your projects, I will assist you provided that you have made a good-faith effort to resolve the problems first. No prior experience in Matlab is expected.

Good design and structure are expected; programs do not earn grades of A simply because they work. You are not expected to comment every line nor to comment obvious lines of code (e.g. `counter = counter + 1` does not need a comment), but you must provide enough documentation such that a reasonable programmer can easily follow your code. Failure to do so will result in the program earning a lower number of points.

Labs: Most labs consist of a programming portion and a written report. Lab reports should be double spaced, use 11 point Times Roman font and have 1.25" margins<sup>1</sup>. Excluding references, lab reports shall not exceed five pages. The purpose of the report is to help you hone your scientific writing skills and provide an opportunity to demonstrate mastery of the material. As such, lab reports are graded on both content and grammar.

Reading summaries: In some cases, you will be asked to read specific articles or sections of books that are not from your primary textbook. Your summary should succinctly describe the work in no more than two double spaced pages with 1.25" margins set in 11 point Times Roman type<sup>1</sup>. In most cases, you will not be able to discuss the entire article; you will need to choose what is most important and summarize it in your own words.

#### Academic Honesty:

You are free to discuss ideas and strategies for approaching problems with others, but students must complete work on their own. Using other people's work in any form (i.e. the web, other students) will result in disciplinary action. Plagiarism is unacceptable and will not be tolerated. My standard course of action is to report students whom I believe have cheated or plagiarized to the Judicial Procedures Office. In addition to the academic penalty (usually an F for the course), Judicial Procedures may decide upon additional sanctions such as expulsion.

#### Classroom policy:

Turn cell-phone ringers off before class and refrain from chatting during class as both disturb the students around you. If you find yourself unable to resist chatting, I'll ask you once to be quiet. If I have to ask again, I'll ask you to leave for the day.

#### Conflicts/Issues:

Should you have any concerns about the course, please see me during my office hours or make an appointment and we will try to resolve the problem together. If you are not satisfied with the resolution after having discussed the issue with me, you may contact Dr. Leland Beck.

#### Schedule:

The schedule for the semester is posted on the course web site. Your midterm is tentatively scheduled for Monday October 24<sup>th</sup>. Your final exam will be Monday December 12<sup>th</sup> 3:30-5:30 PM in our normal class room. ***No early finals will be given, so if you are booking plane tickets do not schedule a date before the final exam.***

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<sup>1</sup> If you are a LaTeX user, you can use a report format with double spacing. Some report formats have a draft option which lets you accomplish this.