

CSE 4214: Digital Communications

Basic Information

- Instructor: Andrew W. Eckford, aekford@cse.yorku.ca
Office hours: Tuesday/Thursday, 11:30-12:30
- Class time and location: Tuesday/Thursday, 10:00-11:30, CB 120
- Course website: <https://wiki.cse.yorku.ca/course/4214/>
- Required text: S. Haykin, Communication Systems (4th ed.), Wiley.

Brief outline of course material (from the calendar description)

- Review of probability and random variables
- Introduction to stochastic processes and noise
- Introduction to information theory: Shannon's Source Coding and Channel Coding Theorems
- Source coding: Lossless coding (Huffman, Arithmetic, and Dictionary codes) versus lossy coding (Predictive and transform coding)
- Analog to digital conversion: Sampling and quantization
- Baseband transmission
- Binary signal detection and matched filtering
- Intersymbol interference and channel capacity
- Digital bandpass modulation and demodulation schemes
- Error performance analysis of M-ary schemes
- Channel coding: Linear block, cyclic, and convolutional codes
- Decoding techniques for convolutional codes, Viterbi algorithm
- Synchronization techniques
- Spread spectrum modulation: Direct sequence and frequency hopping

Grading scheme

4 Quizzes	10% (2.5% each)	Midterm exam	25%
4 Labs	20% (5% each)	Final exam	45%

- **Assignments**

There will be four assignments, given at regular intervals throughout the term. These assignments are for personal study, and are not to be handed in. However, each quiz will be based on the most recent assignment.

- **Quizzes**

There will be four quizzes, given at regular intervals throughout the term. The quizzes will be written in class during the last 30 minutes of a regular lecture period. As mentioned above, the quizzes will be based on the assignments.

- **Labs**

There will be four major lab assignments. Generally, these will not require the use of any lab equipment, but will require the use of the department computer system, using software such as MATLAB. Your grade will be based on a submitted report concerning the lab. (Note, there is no designated laboratory period for this course, so labs are to be completed on your own time.)

Course Policies

- **Late/missing lab report policy**

Late lab reports will result in a 25% penalty on the lab grade; missing lab reports will result in a grade of zero for the lab. Lab reports will be considered missing if they are not received within two weeks of the due date.

If a major situation **beyond your control** causes you to miss the due date for a lab report, please ask the instructor **as soon as possible** for an extension. Failure to request an extension **at the earliest opportunity** may result in a denial of the extension. **Documentary evidence (e.g., doctor's note) will be required** to justify the extension.

- **Missed quiz/midterm policy**

If a major situation **beyond your control** causes you to miss a quiz or midterm, the weight will be added to the final exam. Otherwise, a grade of zero will be entered. You must contact the instructor **in advance, or as soon as possible** after the missed quiz/midterm. Failure to notify the instructor **at the earliest opportunity** may result in a denial of consideration. **Documentary evidence (e.g., doctor's note) will be required** to justify your absence.

- **Quiz / midterm re-marking policy**

If you believe an error was made in marking a quiz or the midterm, submit a **written** request to have the quiz or midterm re-marked, **clearly describing the error that you believe was made**. You must submit your re-marking request **within one week** of receiving your graded work, otherwise the mark will be considered final. The entire work will then be subjected to re-marking, and your grade may increase, decrease, or stay the same.

- **Missed final exam policy**
Contact the instructor in advance, or as soon as possible after the missed exam, and provide **documentary evidence** of your reason for missing the final exam. **In particular, if the reason is medical, your doctor must complete the “Attending Physician's Statement” that is part of the petitions package.** If the instructor agrees that your reason for missing the exam was justified, you will be granted deferred standing and will write the exam at a later date. If the instructor does not agree, you must file a formal petition for deferred standing. If the petition fails, a grade of zero will be entered.
- **Final exam re-marking policy**
Within three weeks of receiving your official course grade, go to the Computer Science and Engineering department office and request a copy of your exam. If you spot errors, you must submit a formal “Request for Grade Reappraisal,” forms for which are available at the department office.
- **Policy on Academic Honesty**
Procedures to catch cheating, such as photocopying of exams, may be used at any time. Academic honesty is taken very seriously, and policies of the Department of Computer Science and Engineering with respect to academic honesty will be followed carefully. More information can be found at: <http://www.cs.yorku.ca/admin/coscOnAcadHonesty.html>
- **Marks available prior to the drop date**
You will receive your marks for the first two quizzes, the first two labs, and the midterm exam, prior to the drop date (November 9, 2007). This is worth a total of 40% of your final grade.