

# ECEn671 – Fall Semester, 2007

**Classroom Schedule:** TTh at 2:00–3:15 in 254CB

**Professor:** Wynn Stirling, 442 CB, Phone: 422-7669; E-mail: wynn@ee.byu.edu

Prerequisite:] ECEn 380, Math 343 (or equivalent)

**Text:** Mathematical Methods and Algorithms for Signal Processing, by Moon and Stirling, Prentice Hall, 2000. Lecture notes by Wynn Stirling in the bookstore.

## Approximate Course Outline

In this course we will be covering a great deal of mathematical information, and we will need to maintain a fairly rapid pace if we are to cover all of the material that this course is supposed to include. We will need to cover almost all of Chapter 2, most of Chapters 3 and 4, some of Chapter 5, most of Chapter 6, a great deal of Chapter 7, and portions of Chapters 8, 9, and 18 (if we can maintain our pace). The following table is intended merely to pace ourselves approximately. However, the further along we get the more we are likely to deviate from this schedule (as they say, war plans are very accurate until the first shot is fired).

Week	Date	Reading
1	9/4, 9/6	ch 2.1–2.5
2	9/11, 9/13	ch 2.6–2.10
3	9/18, 9/20	ch 2.11–2.16
4	9/25, 9/27	ch 3.1–3.5
5	10/2, 10/4	ch 3.6–3.10
6	10/9, 10/11	ch 3.11–3.19
7	10/16, 18/14	ch 4.1–4.5
8	10/23, 10/25	ch 4.6–4.12
9	10/26, 10/28	ch 5
10	10/30, 11/1	ch 6.1–6.7
11	11/13, 11/15	ch 6.8–6.15
12	11/16, 11/18	ch 7
13	11/27, 11/29	no class
14	12/4, 12/6	ch 8, ch 9
15	12/11, 12/13	ch 9, ch 18, review

## Grading Policy

### Exams

There will be two midterms (9–11 October and 6–8 November, approximately) and a final examination. Each midterm will count 25% and the final will count 50% of your grade, with adjustments possible via the homework as indicated below.

### Homework

A student cannot seriously expect to do well without attending class regularly and working all of the assigned homework. Homework will normally be accepted on or before the due date only. Late homework will not be considered without a very good reason. Assignments will be due by class time each Tuesday. Your homework scores will not adversely affect your grade, but will be used to evaluate borderline cases to the extent that a strong homework performance can raise your grade by one graduation on the grading scale (e.g., from a  $B+$  to an  $A-$  or from an  $A-$  to an  $A$ ).

I view homework as a carrot rather than a stick. You will receive full homework credit if you seriously attempt each assigned problem, even if you don't finish it. Work on the problem until you either finish it or reach a point of diminishing returns for time spent. At that point, you will have learned all you can on your

own, and it is time to check the answer book, which will be made available after the due date. Homework, in my view, is an extension of the lecture, and is an opportunity for you to teach yourself. For this reason, I do not punish you for not getting it right. Thus, you have no incentive to copy from your neighbor—it won't help your score. You are welcome and even encouraged to work together on the homework, and to teach each other in every way possible (except on exams).

This method of dealing with homework makes it possible for students to finesse the homework. In fact, if you are sufficiently confident in your understanding, you don't even need to do the homework to get an A. I seriously doubt, however, that you will be able to do well in the course without spending a great deal of time on the homework. Nevertheless, feel free to try—but I strongly discourage such foolhardy behavior.

## Instructor Perspective and Course Goals

This is not a course in which you can easily catch up if you get behind. If you do not have the necessary prerequisites, or if you anticipate disruptions (e.g., weddings, travel, other conflicts) during the semester, you would be well advised to postpone the class until you have the required background and can give it appropriate attention. This is a very demanding class, the material is quite mathematically sophisticated for people the math skills of typical electrical engineering undergraduates, and there is a *great amount* of homework. Be prepared to hit the ground running and accelerate from there.

Mastery of the material in this course will prepare you to appreciate and participate in the state of the art of this sub-discipline. There are three basic goals of this course:

- To give you with a fundamental background in the mathematics of signal processing.
- To introduce you to the material necessary to conduct research.
- To bring you to a level of being conversant with the current technical literature, such as is found in many IEEE transactions.

## Honor Code

All work that you submit is to be your own except where specifically stated otherwise. Honor Code violations include but are not limited to: the copying (by hand or copy machine) of another individual's work on exams, quizzes, homework, simulations, or reports; the use of another individual's computer files; the copying of any computer software which the student has not been given permission to copy by the instructor; unauthorized use of equipment including the computers and network system.

## Preventing Sexual Harassment

Title IX of the Education Amendments of 1972 prohibits sex discrimination against any participant in an educational program or activity that receives federal funds. The act is intended to eliminate sex discrimination in education. Title IX covers discrimination in programs, admissions, activities, and student-to-student sexual harassment. BYU's policy against sexual harassment extends not only to employees of the university but to students as well. If you encounter unlawful sexual harassment or gender based discrimination, please talk to me; contact the Equal Employment Office at 422-5895 or 367-5689 (24-hours); or contact the Honor Code Office at 422-2847.

## Students with Disabilities

Brigham Young University is committed to providing a working and learning atmosphere which reasonably accommodates qualified persons with disabilities. If you have any disability which may impair your ability to complete this course successfully, please contact the University Accessibility Center (422-2767). Reasonable academic accommodations are reviewed for all students who have qualified documented disabilities. Services are coordinated with the student and instructor by the SSD Office. If you need assistance or if you feel you have been unlawfully discriminated against on the basis of disability, you may seek resolution through

established grievance policy and procedures. You should contact the Equal Employment Office at 422-5895, D-282 ASB.