

**George Mason University  
Electrical and Computer Engineering Department**

**ECE 738: ADVANCED DIGITAL SIGNAL PROCESSING  
Fall 2007**

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|-------------|---|---------------|--|
| Instructor: | Dr. Kathleen Wage<br>Sci and Tech II, Room 243<br>703-993-1579<br>kwage@gmu.edu | Class:        | Wednesday 4:30-7:10 pm<br>Enterprise, Rm 173                             |
|             |   | Office hours: | Tuesday 4:30-5:30 pm<br>Wednesday 11am-12pm, 3-4 pm<br>or by appointment |

Prerequisite: ECE 535 & ECE 528, or permission of instructor

Required Texts: Course reader available from GMU Bookstore.

*Discrete-Time Signal Processing*, Second Edition  
A.V. Oppenheim and R.W. Schaffer with J.R. Buck (Prentice-Hall 1999)

Course Webpage: <http://teal.gmu.edu/~kwage/ece738/fall107>

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### Course Description

The goals of ECE 738 are summarized below:

1. To introduce students to advanced topics in signal processing, including spectral estimation and array processing.
2. To give students experience in analyzing real data using standard signal and array processing techniques.
3. To provide students with the background they need to pursue independent research on these topics.

The work for this course consists of weekly homework assignments, three projects, and two in-class exams. For the third project, each student will select a recent paper from the literature to analyze. Students will give oral presentations summarizing the results of Project 3 during the final exam period.

### Grading

The final grade in the course is based on my best assessment of your understanding of the material and participation during the semester. The exams, homework, and projects are combined with the following rough weighting to give a preliminary final grade:

|           |     |                                |
|-----------|-----|--------------------------------|
| Homework: | 10% | (lowest score will be dropped) |
| Projects: | 40% |                                |
| Exam 1:   | 25% |                                |
| Exam 2:   | 25% |                                |

## General Policies

- The course website contains assignments, solutions, lecture materials, and announcements. Check it regularly for updated information.
- Email is the best way to contact me to set up an appointment or to ask short questions.

## Class Meetings

- It is assumed that you will attend all classes, but attendance will not be formally recorded. If you need to miss class, it is your responsibility obtain the notes from another student.
- It is strongly recommended that you do the assigned reading prior to coming to class.

## Homework & Projects

- Homework and Projects are due at the **beginning of class** on the day indicated by the hand-out. Solutions will be posted on the course webpage. **No late assignments will be accepted.**
- The homework should be neat with the pages stapled or clipped together. The problems should be in sequential order. Answers should be circled or otherwise indicated. All plots should be appropriately labeled.

## Exams

Exam dates are specified on the syllabus. Under certain circumstances, rescheduling of an exam may be allowed, provided that the exam is taken **before** the regularly scheduled exam.

## Grade Changes

A student requesting a grade change for any assignment must provide the instructor with the following within 2 *class periods* after the work is returned: the assignment and a paragraph describing why you feel you should receive additional points for the work. Note that in some cases, it is possible that what you wrote for the assignment indicated a better understanding of the problem than you actually possess. If the paragraph you submit indicates that you don't understand the problem as well as the grader thought you did, then your score *may be reduced*.

## Honor Code

All students are expected to abide by the George Mason University Honor Code. *Moderate* sharing of ideas and comparison of answers on homework and Matlab projects is acceptable, but *copied work is not acceptable*. All exams will be closed book and closed notes unless specifically stated otherwise by the instructor. All exam work must be your own. Any reasonable suspicion of an honor code violation will be reported.