

## SYLLABUS FOR MATH 416, SPRING 2008

Monday, Wednesday, Friday 9:00 a.m. - 9:50 a.m.  
MTH B0429

**Prerequisites:** MATH 141, MATH 240, or permission of the instructor. Familiarity with MATLAB is also required.

**Text:** Mathematics for Multimedia, Mladen Victor Wickerhauser, Academic Press, 2004 (Required)

**Instructor:** Dr. Wojciech Czaja

**Office:** MTH 4406

**Office Hours:** Monday, Wednesday, Friday 10:00 a.m. - 10:50 a.m.

**Phone:** (301) 405 - 5106

**Email:** wojtek (at) math (dot) umd (dot) edu

**Class Web Page:** [www.math.umd.edu/~wojtek/416\\_08.htm](http://www.math.umd.edu/~wojtek/416_08.htm)

**Exams:** There will be 2 midterm exams during the semester, each for the total of 50 points. They are tentatively scheduled on March 12 and April 25. The final exam is scheduled for May 19, 8 a.m. - 10 a.m. It is worth 100 points.

**Calculators:** Calculators will NOT be allowed for the exams, but small (5 x 3 in.) note cards will be allowed during the exams.

**Homework:** Every other Friday of the week that has no exam scheduled, homework will be assigned. (Homeworks are due the next Wednesday.) Each one is worth 20 points, and there will be 5 such assignments. Late homework will not be accepted.

**Grading:** The maximum point total is 300 points and the total used to calculate the final grade is the minimum of the two numbers: 300 points and the largest score in the class. The setting of letter grades will be based on the number of points and will be no worse than: 50% - D, 60% - C, 75% - B, 90% - A.

**Academic integrity:** The University makes me remind you about its academic integrity policies. So I do. Nobody, however, has to remind me that part of my job is to make sure these policies are obeyed.

**Attendance and absences:** You are responsible for the material covered in class, whether you attend or not. You are also responsible for the announcements made during class; they may include changes in the syllabus.

**Disabilities** If you have some disability related to testing under the usual timed, in-class conditions, you may contact the office of Disabled Students Services (DSS) in Shoemaker. (Please let me know immediately if you think you may require these

service.) If they assess you as meriting private conditions and/or extra time, then you may arrange to take your tests at DSS, with extra time as they indicate. You must arrange this well in advance of a test (in particular: no retakes).

**Emergency closures:** In case of an emergency that closes the University for an extended period of time (for example, due to inclement weather), be sure to access your email for instructions from me. Also check the University's home page.

## OUTLINE OF MATERIAL

Background Material: Numbers and Computer Arithmetic; Vector Spaces and Linear Transformations [3 weeks]

Fourier Series, Discrete Fourier Transform [4 weeks]

Sampling, Quantization, Precision, and Accuracy [2 weeks]

Wavelet Bases, Discrete Wavelet Transform, [3 weeks]

Applications to Coding, Detection, and Compression [2 weeks]