Syllabus
MATH 464: Transform Methods for Scientists and Engineers
Fall 2009

Instructor: Dr. K. Okoudjou
Contact: MTH 4116; email: kasso(at)math(dot)umd(dot)edu; phone: 55081.
Lectures: MWF 8:00 am - 8:50am.
Lecture Room: MTH 0103.
Office Hours: Monday, Wednesday and Friday, 10:00am - 11:00am; or by appointment.

Prerequisite: MATH 246 and 400-level mathematics or electrical engineering courses, perhaps taken concurrently.
Course Description: MATH 464 is an introduction to transformed methods used in science and engineering applications. Lectures will cover topics including: Fourier transform, Fourier series, discrete and fast Fourier transform (DFT and FFT), Laplace transform, Poisson Summation, and sampling. Optional Topics: Distributions and operational calculus, PDEs, Wavelet transform, Radon transforms. Applications: Imaging, Speech Processing, PDEs of Mathematical Physics, Communications, Inverse Problems.


Homework: There will be bi-weekly homework assignments due in class on Mondays, and covering the previous two weeks’ material. There will be graded and returned to you. No late homework will be accepted. It is OK to work on the problem sets in cooperation with others, but you must write up the solutions by yourself.

Exams: In addition to the bi-weekly homework assignments, there will be two (in class) midterm exams and a final exam. The exams test understanding as well as problem solving skills. The final is comprehensive. The tentative schedule for the exams is
Exam 1: Friday, October 9
Exam 2: Friday, November 13
Final: TBA.
Course project: There will also be a final course project. You can choose to work in group of three (3) on these projects. The project can consist of reading and writing a report on topics that are not covered in class. You can also choose any topic in signal processing, physics or chemistry which is related to some of the materials covered in class. In any case, I suggest that you talk to me about your project before making a final choice.

Grading: The midterm exams count 25% each, the final 25%, the homework 20%, and the course project 5%. Tentatively, letter grades will be based on your accumulated points at the end of the semester, according to the following scheme: 90%-A; 80%-B; 70%-C; 50%-D.

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. If you need accommodations because of a disability, please inform me immediately.

Student Conduct Code: The University of Maryland, College Park has a nationally recognized Code of Academic Integrity, administered by the Student Honor Council. This Code sets standards for academic integrity at Maryland for all undergraduate and graduate students. As a student you are responsible for upholding these standards for this course. It is very important for you to be aware of the consequences of cheating, fabrication, facilitation, and plagiarism. For more information on the Code of Academic Integrity or the Student Honor Council, please visit the Student Honors Council web site: http://www.studenthonorcouncil.umd.edu/whatis.html.

Course evaluation: CourseEvalUM will be open for you to complete your evaluations for fall semester courses between Tuesday, December 1 and Sunday, December 13. Please go directly to the website (www.courseevalum.umd.edu) to complete your evaluations starting December 1.