MAT 518   Topics in Applied Mathematics
A. Lutoborski,   Syracuse University
Fall 2010.

Classes: Section 001, M-W-F, 12:45-1:40, Carnegie Building, Room 219.

Instructor: Professor Adam Lutoborski, Department of Mathematics,
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Office Hours: Mondays 3:30-4:30, Tuesdays 3:30-4:30.

Text: "An Introduction to Wavelet Analysis" by David F.Walnut , Birkhauser 2004.

Prerequisites: MAT 514.

Course Description: We will discuss transform methods, both continuous and discrete for representing and analyzing functions. We begin with the Fourier analysis which is a classical tool in applied mathematics and devote the second part of the course to wavelets. Wavelets were developed in the last 20 years finding applications in signal processing, numerical analysis, astronomy and physics. We will cover Chapters 1–7 from the text. Main topics are: inner product spaces, Fourier series, Fourier transform, Discrete Fourier transform, Haar wavelets, wavelet transforms, multiresolution analysis.

Exams, Homeworks, Final Exam: There will be two 55 min exams and a cumulative final exam given in this course. Homework will be given every week. and will be handed in; selected problems will be graded. Dates of the exams will be announced approximately a week before the exam. Final Exam: Wednesday December 17, 12:45-2:45 pm.

Course Grades: Course grades will be determined by: homework= 35%, 2 exams= 40%, final exam= 25%. There will be no make-up exams for any reason. A missed test counts as zero unless the student presents a note from the doctor or from the dean's office stating explicitly that the student was not able to attend. With the note, the final exam grade will be used to fill the missing grade. Everyone is required to take the final exam.

Disability-Related Accomodations: Students who are in need of disability-related academic accommodations must register with the Office of Disability Services (ODS), 804 University Avenue, Room 309, 315-443-4498. Students with authorized disability-related accommodations should provide a current Accommodation Authorization Letter from ODS to the instructor and review those accommodations with the instructor. Accommodations, such as exam administration, are not provided retroactively; therefore, planning for accommodations as early as possible is necessary. For further information, see the ODS website, Office of Disability Services http://disabilityservices.syr.edu/

Academic Integrity: The Syracuse University Academic Integrity Policy holds students accountable for the integrity of the work they submit. Students should be familiar with the Policy and know that it is their responsibility to learn about instructor and general academic expectations with regard to proper citation of sources in written work. The policy also governs the integrity of work submitted in exams and assignments as well as the veracity of signatures on attendance sheets and other verifications of participation in class activities. Serious sanctions can result from academic dishonesty of any sort. For more information and the complete policy, see http://academicintegrity.syr.edu