# APPM 5450, Applied Analysis II, Spring 2006

Gunnar Martinsson
phone: 492-2646, email: per-gunnar.martinsson@colorado.edu, office: ECOT 233

**Meeting times:** MWF 12.00 - 12.50, ECCR 108. (See also the section on "tutorial sessions" below.)

**Text:** The main text is "Applied Analysis" by John K. Hunter and Bruno Nachtergaele. I would also recommend "Introductory Real Analysis" by Kolmogorov and Fomin; it is a beautifully written, very readable book (and cheap, about $11 on Amazon).

**Office hours:** Mondays 16.00 – 17.00, Wednesdays 13.30 – 14.30. If you cannot make the office hours, feel free to make an appointment for another time.

**Exams and grading:** There will be three midterms and a final (closed books exams). The final is worth 40% of the grade, and the midterms are worth 20% each.

**Home work:** A home work will be assigned each Monday. It will not be collected or graded, but the midterms will consist mostly of problems very similar to the home work problems.

**Tutorial sessions:** Mondays 17.00 – 18.00, ECCR 118. The main purpose of this session is to discuss the home work problems for the previous week.

**Web-resources:** There is a class website with up-to-date information about the syllabus, homework assignments, class handouts, and so on. It will soon be located at:
`http://amath.colorado.edu/courses/5450/2006spring/`
As a temporary solution until the correct URL is working, you'll find a copy at:
`http://www.math.yale.edu/users/pjm34/APPM5450`

**Pre-requisites:** This class will be taught as a direct continuation of APPM5440. It will be assumed that all students know the material covered in that class. If you wish to join the class, but did not take APPM5440, you will probably want to look over Chapters 1 - 7.2 of the text book and make sure that you feel comfortable with that material. It would probably also be a good idea to talk to the instructor.

**Remark:** It is very important that you not fall behind in this class. Almost all material that will be covered will utilize results that were presented earlier in the semester. If you find that you do not understand, please ask for help as early as possible!

**Principal topics to be covered:** Bounded linear operators on Hilbert space, spectral theory for (some) bounded linear operators, Sturm-Liouville problems, the Fourier transform, distributions, measure theory and $L^p$ spaces, Sobolev spaces. Very roughly speaking, the class will cover chapters 8 - 12 of the text book. Some sections will be skipped, including most of chapter 10.