MATH 5543, Numerical Analysis for Differential Equations

Spring 2010 TR 2:00-3:15pm, MSCS 445

- **Course description:** Prerequisites: MATH 4233, MATH 4153 (or CS 4153). Advanced machine computing, algorithms, analysis of truncation and rounding errors, convergence and stability applied to discrete variables, finite difference methods for solving hyperbolic, parabolic and elliptic differential equations. One programming language (e.g. C/C++, Fortran, Matlab, Maple) is required. Among them, Matlab is recommended.

- **Instructor:** Yanqiu Wang
  - Office: 441 MATH (405-744-5698).
  - Office Hours: TTh 4-6pm or by appointment.
  - Email: yqwang (AT) math.okstate.edu

- **Webpage:** http://cauchy.math.okstate.edu/~yqwang/teaching/math5543_spring10/index.html

- **Textbook:** Finite Difference Schemes and Partial Differential Equations, 2nd ed., J. C. Strikwerda

- **Grading policy:** Your final grade will be based on the following:
  - 5 homework assignments (5*20pts)
  - 2 midterm exam (2*50pts)
  - Final Exam (100pts): comprehensive, open-book, open-notes;
  - The Total is 300 pts: A (>=90%), B (>=80%), C (>=70%), D (>=60%).

- **Make-up policy:**
  - Make-ups for exams will only be allowed for an authorized absence under University Regulations. Normally a written note is required. Student should contact the instructor to schedule a make-up by the end of the next working day after the missed exam.
  - You sacrifice 5 points per day for each late homework and programming assignments. Early submissions are always welcome.

- **Further reading:**
  - *Numerical Solution of Partial Differential Equations,* K.W. Morton and D.F. Mayers
  - *Numerical Partial Differential Equations: Finite Difference Methods,* J. W. Thomas
  - *Partial Differential Equations with Numerical Methods,* S. Larsson and V. Thomee

- **Syllabus Attachment** Check http://osu.okstate.edu/acadaffr/aa/syllabus.htm (Syllabus Attachment) for university-wide rules regarding dropping a course, academic integrity, and office of student disability services.