

# MATH 5553, Numerical Analysis for Linear Algebra

Spring 2012

MWF 9:30-10:20am, Classroom: MSCS 509

- **Course description:** Prerequisite(s): 3013, and 4513 or CS 4513. Advanced machine computing, algorithms, analysis of rounding errors, condition, convergence, and stability applied to direct and iterative solution of linear systems of equations, linear least squares problems, and algebraic eigenvalue problems, including LU and QR factorization, conjugate gradients, QR algorithm, and Lanczos method.
- **Instructor:** Yanqiu Wang
  - Office: 441 MATH (405-744-5698).
  - Office Hours: MW 10:30 am – 12:30 pm or by appointment.
  - Email: yqwang (AT) math.okstate.edu
- **Webpage:** [http://www.math.okstate.edu/~yqwang/teaching/math5553\\_spring12/](http://www.math.okstate.edu/~yqwang/teaching/math5553_spring12/)
- **Textbook:** Numerical Linear Algebra, L.N. Trefethen and D. Bau, SIAM, 1997.  
**Supplementary reading:** Matrix Computation, G.H. Golub and C.F. Van Loan.  
**Supplementary reading:** Iterative Methods for Solving Linear Systems, A. Greenbaum.  
**Supplementary reading:** Iterative Methods for Sparse Linear Systems (1<sup>st</sup> ed.), Y. Saad, electronic version available free at <http://www-users.cs.umn.edu/~saad/books.html>  
**Supplementary reading:** Numerical Computing with Matlab, C. Moler, electronic version available free at <http://www.mathworks.com/moler/chapters.html>
- **Grading policy:** Your final grade will be based on the following:
  - 5 homework, 20 points each (100pts);
  - One mid-term Exam (100pts);
  - Final Exam (100pts): comprehensive;
  - The Total is 300 pts: A ( $\geq 90\%$ ), B ( $\geq 80\%$ ), C ( $\geq 70\%$ ), D ( $\geq 60\%$ ).
- **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.
  - There is NO make-up for homework assignments. You sacrifice 5 points per day for each late homework assignment.
- **Syllabus Attachment** Check the following link for Syllabus Attachment for university-wide rules regarding dropping a course, academic integrity, and office of student disability services <http://academicaffairs.okstate.edu/faculty-a-staff/48-syllabus-spring>