

Department of Mathematics
11:30 am, MWF Fall 2007

University of Iowa

Iowa City, IA 52242
110 MLH

22M:270 Theoretical Numerical Analysis (I)

Instructor: WEIMIN HAN

Contact Information: whan@math.uiowa.edu, 5-0770, B1D MLH

Office hours: 1:30–4:30 pm, Wednesdays

Textbook: K.E. ATKINSON AND W. HAN, *Theoretical Numerical Analysis*, 2nd edition, Springer, 2005.

Course description. The course sequence 22M:270–271 prepares graduate students in mathematics, engineering and physical sciences theoretical background for research in numerical analysis/computational mathematics and helps them to move rapidly into a research program. It starts with a preparation of basic knowledge of functional analysis. The course sequence covers core topics in numerical analysis, such as approximation theory, Fourier analysis and wavelets, iteration methods for nonlinear equations, finite difference methods, Sobolev spaces and weak formulations of boundary value problems, finite element methods, elliptic variational inequalities and their numerical solution, numerical methods for solving integral equations of the second kind, and boundary integral equations for planar regions with a smooth boundary curve. Each topic is introduced with certain degree of depth. Comprehensive references on a particular topic are provided for further reading and study.

In 22M:270, we will cover most of the materials from the first 6 chapters of the textbook.

Grading. There will be weekly homework assignment and a final exam. Homeworks will be due every Friday, except the first and last week of the semester. Homeworks and class participation will count 70% of your course grade, and the final exam 30%.

Course WWW address: <http://www.math.uiowa.edu/~whan/270.d/270.html>

Notes to Student. The Department of Mathematics has offices in 14 MLH. To make an appointment to speak with the chair of the department, call 335-0714 or contact the Departmental Secretary in 14 MLH.

Academic Fraud. Plagiarism and any other activities that result in a student presenting work that is not his or her own are academic fraud. Academic fraud is reported to the departmental DEO and then to the Associate Dean for Academic Programs and Services in the College of Liberal Arts and Sciences.

www.clas.uiowa.edu/students/academic_handbook/ix.shtml

Making a Suggestion or a Complaint. Students have the right to make suggestions or complaints and should first visit with the instructor, then with the course supervisor if appropriate and next with the departmental DEO. All complaints must be made within six months of the incident. www.clas.uiowa.edu/students/academic_handbook/ix.shtml#5

Accommodations for Disabilities. A student seeking academic accommodations first must register with Student Disability Services and then meet with a SDS counselor who determines eligibility for services. A student approved for accommodations should meet privately with the course instructor to arrange particular accommodations. See www.uiowa.edu/~sds/

Understanding Sexual Harassment. Sexual harassment subverts the mission of the University and threatens the well-being of students, faculty, and staff. Visit www.sexualharassment.uiowa.edu/ for definitions, assistance, and the full policy.

Administrative Home of the Course. The administrative home of this course is the College of Liberal Arts and Sciences, which governs academic matters relating to the course such as the add/drop deadlines, the second-grade-only option, issues concerning academic fraud or academic probation, and how credits are applied for various CLAS requirements. Please keep in mind that different colleges might have different policies. If you have questions about these or other CLAS policies, visit your academic advisor or 120 Schaeffer Hall and speak with the staff. The CLAS Academic Handbook is another useful source of information on CLAS academic policy: www.clas.uiowa.edu/students/academic_handbook/index.shtml