

NUMERICAL SOFTWARE

CSC 2307

Course Description

Winter 2010

This course expands upon the material taught in many introductory courses in Numerical Methods, Numerical Analysis, or Scientific Computing. It emphasizes the development and certification of mathematical software in several areas of numerical computing, but avoids the detailed mathematical analysis that is typical of other graduate courses in Numerical Analysis taught in this department. The topics to be covered include the analysis of rounding and truncation errors, stability, reliability, efficiency, robustness, portability, and correctness of programs for numerical computation. We also discuss briefly language and hardware facilities for scientific computing.

Instructor: Ken Jackson, BA 4228, 416-978-7075, krj@cs.toronto.edu

Course Webpage: <http://www.cs.toronto.edu/~krj/courses/2307/>

Office Hours: by appointment

Lectures: Mondays 10 AM to Noon in BA 2139

Course Text: *The Engineering of Numerical Software*, by Webb Miller, Prentice-Hall, 1984. Republished by the Custom Printing Dept., UofT Bookstore. Available at the Textbook Store.

Also download the *Simplified Fortran Guide* by K. R. Jackson from our course webpage.

Additional References: See the bibliography on our course webpage.

Prerequisites: Any previous numerical methods, numerical analysis, or scientific computing course.

Grading:

1. Class presentations: 10%.
2. Three term assignments: 30% each.
You can substitute a term project for one of the assignments.

Plagiarism: Please read

1. *Guidelines for Avoiding Plagiarism*
<http://www.cs.toronto.edu/~fpitt/documents/plagiarism.html>
2. *Advice About Academic Offences*
<http://www.cs.toronto.edu/~clarke/acoffences>