

**Mathematics 3371: Computational Linear Algebra and  
Numerical Approximation I**  
Course Outline (Fall 2011)

**Prerequisites:** Mathematics 2255 and 2275

**Lecture Section:** TTh, 02:30PM to 04:00PM in RB3046

**Instructor:** Fridolin Ting

**Email and Telephone:** fting@lakeheadu.ca, 343-8688

**Office:** RB2018

**Office hours:** Tuesdays 1:30PM - 2:30PM, Thursdays 10:30AM - 11:30AM  
(or by appointment).

**Course website:** [http://flash.lakeheadu.ca/~fting/math3371\\_2011.html](http://flash.lakeheadu.ca/~fting/math3371_2011.html).

*Please visit the course website at least once a week for important announcements, assignments, midterm information, recommended textbook problems and MATLAB resources.*

**Required Textbook:** "Scientific Computing (An Introductory Survey)", by Michael T. Heath. Publisher: Mcgraw-Hill. ISBN: 0072399104.

**Grading Scheme.** Your final grade will be the *higher* of the two grading schemes below:

<b>Grading Scheme #1</b>	Assignments (5)	20%
	Midterm Exam	30%
	Final Exam	50%
<b>Grading Scheme #2</b>	Assignments (5)	20%
	Final Exam	80%

**Assignments:** There will be 5 assignments (every 2 weeks except when there is a midterm). Assignments must be dropped off at the beginning of the lecture/class (2:30pm) *on the day they are due*. There will be at least one question on assignments 2 to 5 which uses MATLAB.

**Midterm Exam:** Tuesday, November 1, 2011 during the 1.5 hour lecture.

**Final Exam:** Date: TBA by Registrar.

**Course Description:** Norms and error analysis, computer arithmetic; numerical methods for solving systems of linear equations, linear least squares, eigenvalue problems and interpolation (and the fast fourier transform). Introduction to MATLAB and programming in MATLAB. Applications to Science and Engineering problems. We will cover Chapters 1 to 4, 7 and 12 of the required textbook.