

Course Outline

Math 3050WA – 2026
Numerical Analysis and Computing
&
Math 3351WA – 2026
Applied Numerical Methods

Instructor: Dr. Liping Liu,
lipingli@lakeheadu.ca, RB 2001

Course Web: myCourseLink

Office hours TBD or by appointment, RB 2001

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Lectures:

Math 3050WA: 4:00 pm - 5:30 pm, M & W, AT 1001

Math 3351WA: 4:00 pm - 5:30 pm, M & W, AT 1001

Labs:

Math 3050L-W1: 11:30 am - 12:30 pm, Monday, AT 3001

Math 3050L-W2: 2:30 pm - 3:30 pm, Thursday, AT 4019

Math 3050L-W3: 1:30 pm - 2:30 pm, Thursday, AT 4019

Math 3351L-W1: 11:30 am - 12:30 pm, Monday, AT 3001

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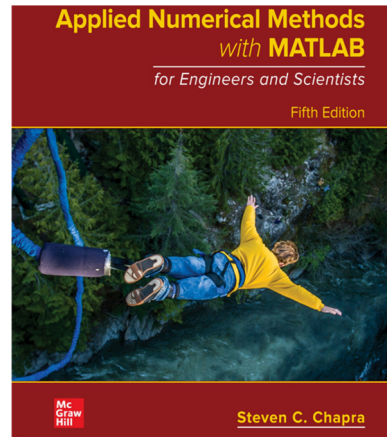
Textbook:

Applied Numerical
Methods with Matlab for
Engineers and Scientists

5th Edition

Steven C. Chapra

E-book available at the
university bookstore: 180 days
access for \$69.99 plus tax



Assignments:

- Assignments will be delivered online via the course website
- No delayed submissions will be counted. If there is a legitimate excuse, the total mark of Assignments will be calculated based on the other Assignments. Otherwise, a grade of 0% for the missed Assignments.

Tests :

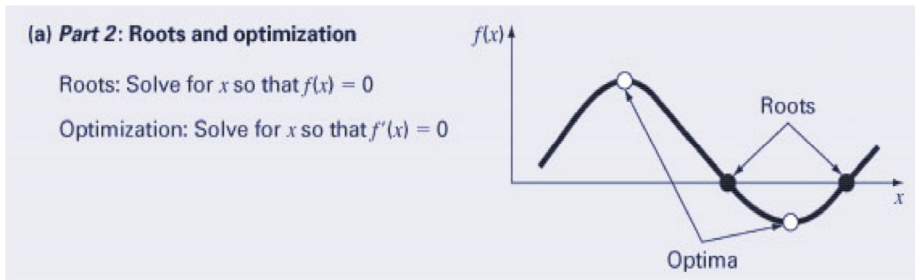
- Quizzes will be delivered on D2L. No make-up quizzes will be provided for students who miss a quiz at the scheduled time. If there is a legitimate excuse, the total quiz mark will be calculated based on the other quizzes. Otherwise, a grade of 0% will be assigned for the missed quiz.
- There will be no midterm test.
- A final examination will be scheduled at the end of the term.

Grading Scheme:

- Assignments 15%
- Quizzes 30%
- Final Exam 55%

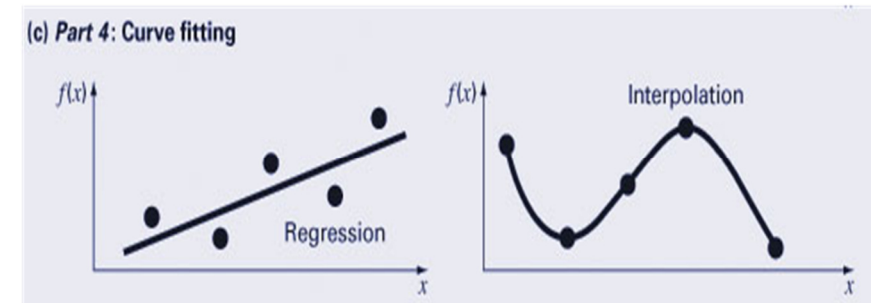
Course Content:

- An introduction to numerical techniques for finding roots of nonlinear equations



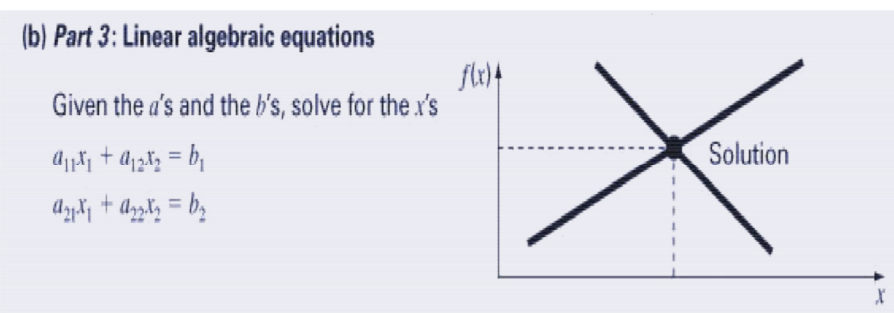
Course Content:

- Approximating functions



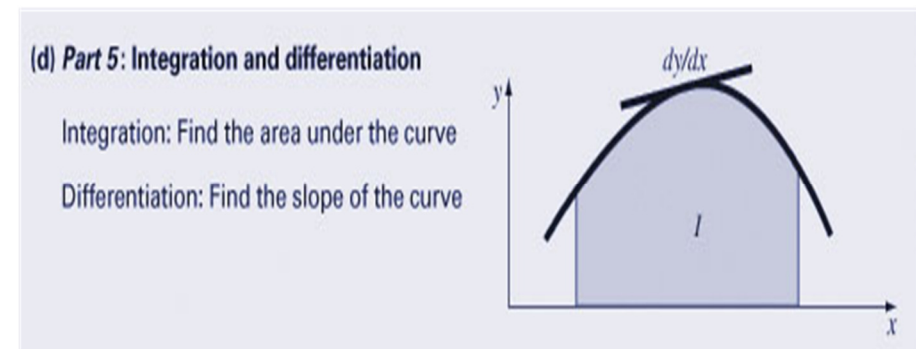
Course Content:

- Solving systems of linear equations



Course Content:

- Approximating integrals



Course Content:

- Solving differential equations

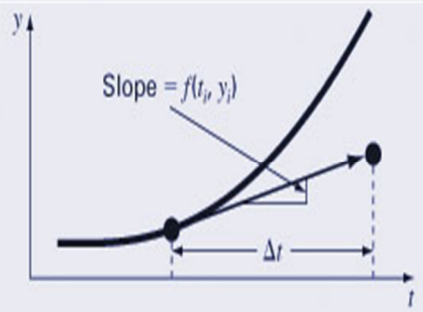
(e) Part 6: Differential equations

Given

$$\frac{dy}{dt} \approx \frac{\Delta y}{\Delta t} = f(t, y)$$

solve for y as a function of t

$$y_{i+1} = y_i + f(t_i, y_i)\Delta t$$



*If you are having difficulty,
or have questions,
please ask me for help!*