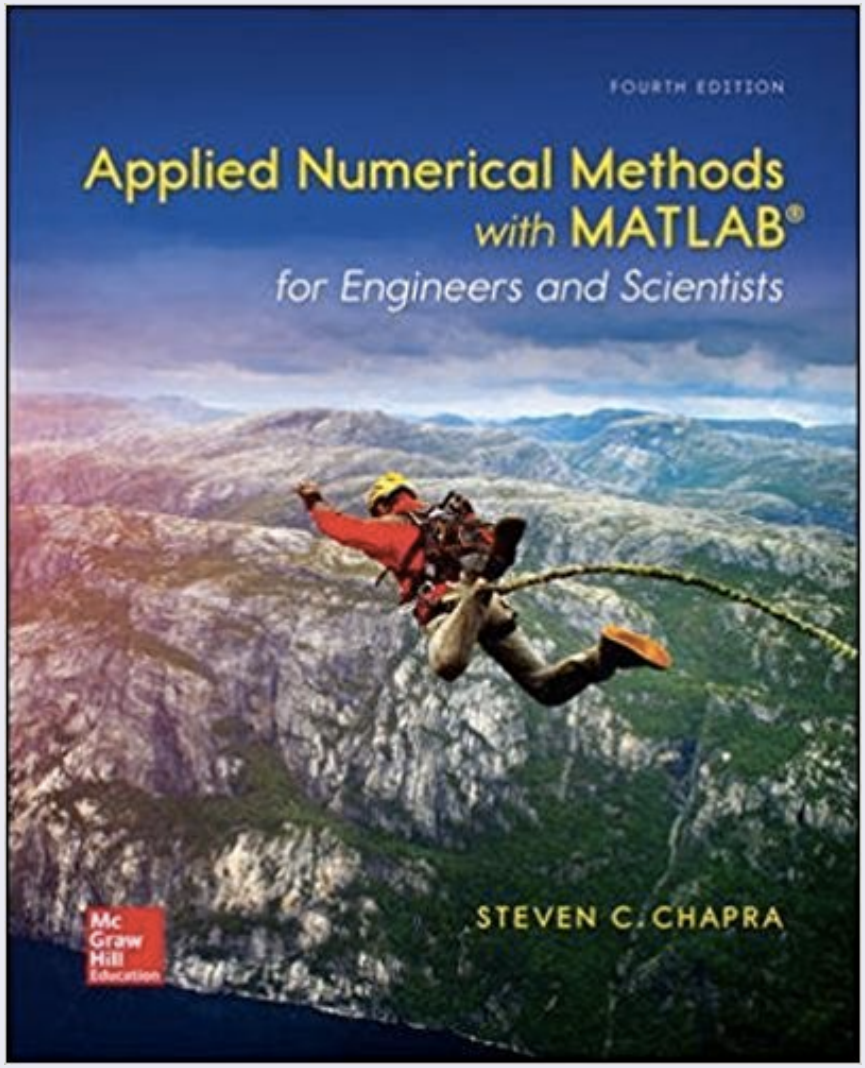
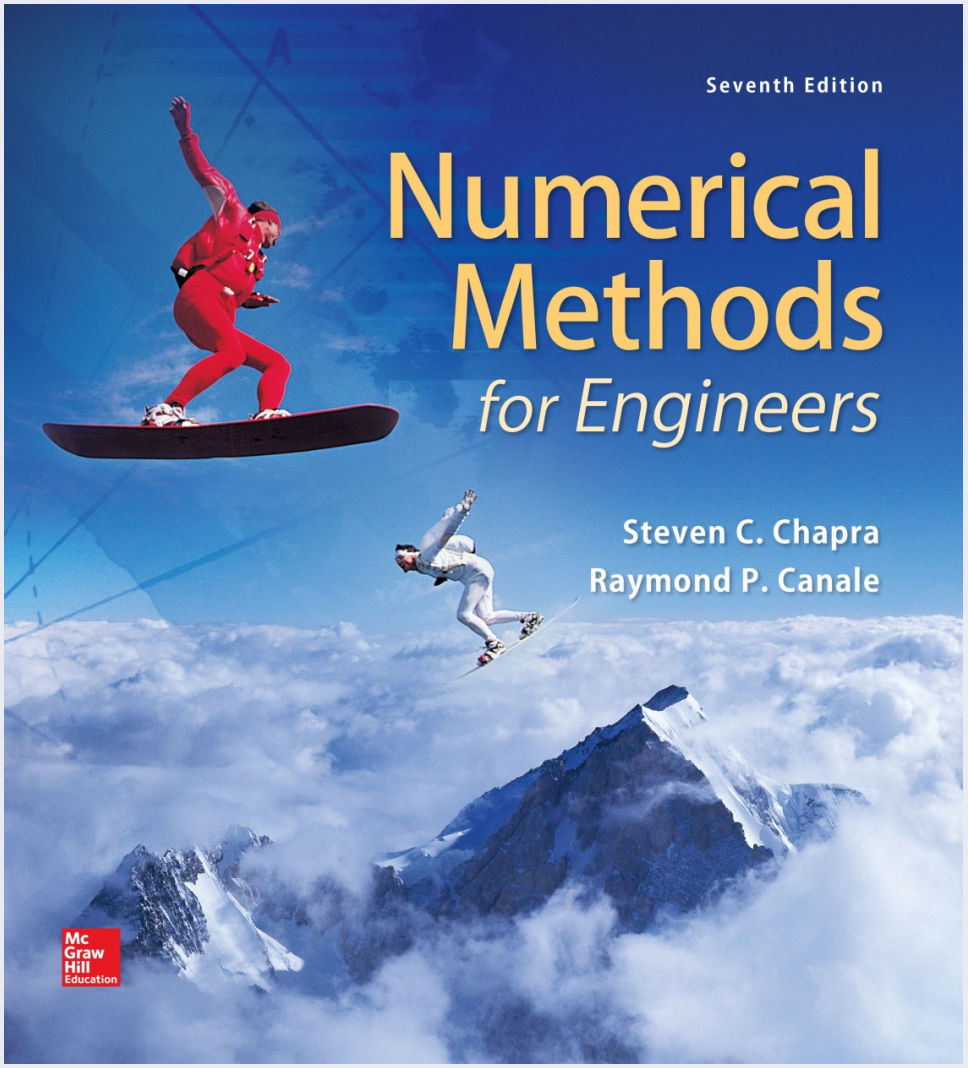
MATH2059
Numerical Methods

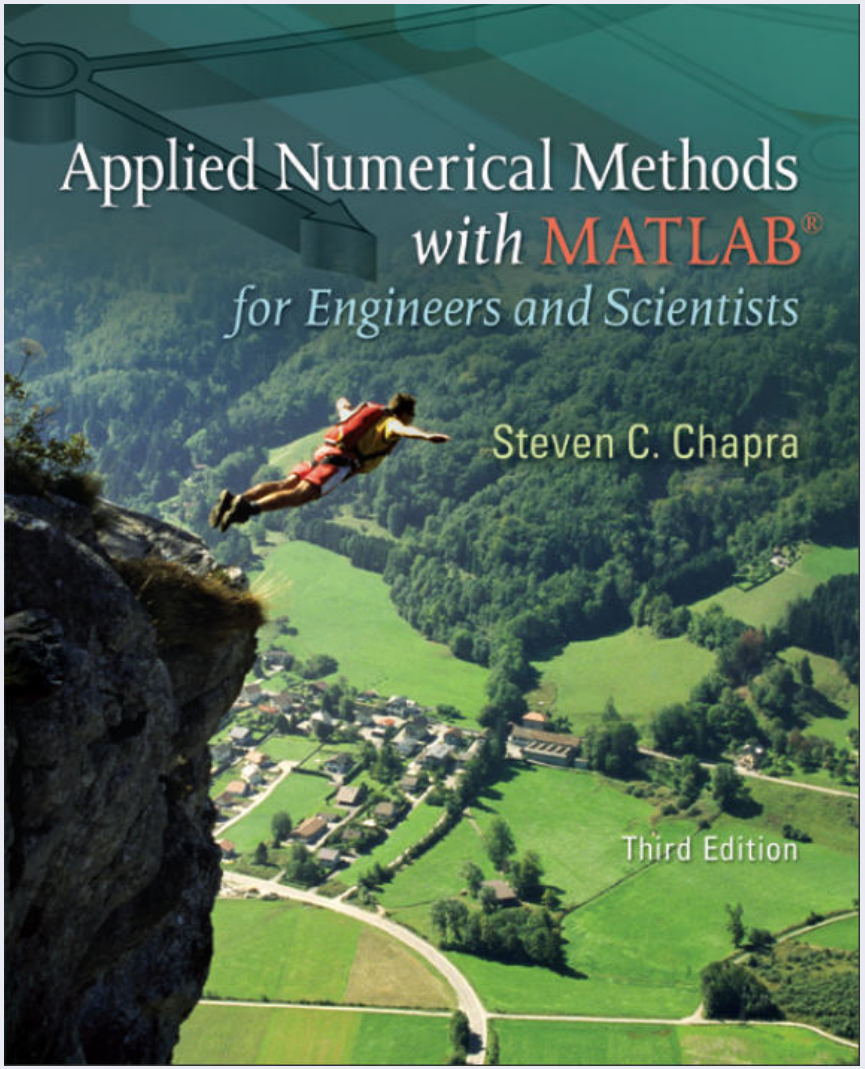
Prof. Dr. Çiğdem Eroğlu Erdem
cigdem.erdem@marmara.edu.tr

Textbooks


FOURTH EDITION
Applied Numerical Methods
with MATLAB®
for Engineers and Scientists
STEVEN C. CHAPRA
Mc Graw Hill Education


Seventh Edition
Numerical
Methods
for Engineers
Steven C. Chapra
Raymond P. Canale
Mc Graw Hill Education

Older Editions



Course Web Page

- https://classroom.google.com
- Class code: o76m5g6
- The Syllabus has been uploaded!
- Visit the class web regularly page to follow:
  - Lecture slides
  - Assignments
  - Announcements

Course Assistant

- Serap Korkmaz
  - E-mail: serap.korkmaz@marmara.edu.tr

Course Objectives

- Introduce:
  - Basic numerical methods and
  - Their applications in engineering

Learning Outcomes

- Learning Objective 1:
  - Use the MATLAB programming language and toolboxes to implement numerical algorithms.
- Learning Objective 2:
  - Solve nonlinear equations with a single unknown using numerical methods.
- Learning Objective 3:
  - Solve systems of linear equations using numerical methods.

Learning Outcomes

- Learning Objective 4:
  - Apply basic principles of optimization using numerical methods.
- Learning Objective 5:
  - Apply interpolation and regression to fit a curve to data obtained in engineering applications.
- Learning Objective 6:
  - Apply numerical methods for differentiation, integration and differential equations.

Grading

- Midterm Exam 30%
- Quizzes 20%
- Attendance-Quizzes (Polls) 10%
- Final Exam 40%

- Homeworks will be given for self-study, which will not be graded.

Quizzes

- There will be at least 4 announced quizzes.
- There is no make-up for quizzes.

Homeworks

- At least three homeworks will be assigned that require MATLAB programming.
- Homeworks will be given for self-study, which will not be graded.
- Install MATLAB to your PC using your Marmara University e-mail address.

MATLAB

- Web Page: www.mathworks.com
- You can install to your PC:
  - Create an account using your Marmara University e-mail address.
  - Install MATLAB
  - You can also use MATLAB online.

MATLAB

- Tutorials
  - Open an account at: www.mathworks.com
  - Go to MATLAB Academy: https://matlabacademy.mathworks.com/
  - Enroll in the self-paced interactive course (takes 2 hours to complete):
    - MATLAB Onramp (free course)