Math 304 (Spring 2016) - Numerical Methods

Syllabus

Description
This is intended to be a first course on numerical analysis. It aims to present modern numerical approaches to classical problems in mathematics, science and engineering whose numerical solutions are essential. The problems that will be touched on include linear systems, eigenvalue problems, nonlinear equations, unconstrained optimization, integration and differential equations.

Instructor
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Teaching Assistant
Fatih Kangal
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Lecture Hours and Location
Monday and Wednesday 10:00-11:15 at ENG B21

Problem Session and Location
Friday 13:00-14:15 at ENG B21
Problem sessions meet once every two weeks

Course Webpage
http://home.ku.edu.tr/~emengi/teaching/math304/index.html

Textbook
We will depend on the lecture notes, which will have substantial overlap with the following textbook

Numerical Mathematics by Matheus Grasseli and Dmitry Pelinovsky

I would recommend to obtain a copy of this book, which will be available at the bookstore in a few weeks. Additionally, my old notes from Spring 2014 are available on the course webpage (please click on the link “Notes”).

Supplementary Book
If you are looking for an additional resource, the following book will be made available at the reserve desk in the library.

Numerical Analysis by Richard L. Burden and J. Douglas Faires
Grading
The following grading scheme will be used.

\[
\text{Total Score} = \%15 \text{ (Quizzes)} + \%15 \text{ (Computational Score)} + \%20 \text{ (Midterm 1)} \\
+ \%20 \text{ (Midterm 2)} + \%30 \text{ (Final)}
\]

Homeworks
Homeworks will be posted on the course webpage. They will not be collected and evaluated. However, quiz questions are selected among the homework questions without any modification.

Quizzes
Four quizzes will be held at the end of the lectures on the following Wednesdays: February 17th, March 2nd, March 30th, May 4th. Each quiz will last 15 minutes, and the questions are chosen from the homework questions. Best three quizzes out of four will be counted towards your grade, the lowest will be dropped.

Midterms
The tentative midterm dates are March 11th, Friday and April 22nd, Friday. Both midterms will be held in the evenings. Both will be closed book and closed notes exams.

Final
All of the topics covered throughout the semester are included. Date, time and location of the final will be announced towards the end of the semester. The final will be a closed book and closed notes exam.

Problem Sessions
The problem sessions meet on Fridays once every two weeks. For some of the problem sessions, you will be assigned computational questions a few days in advance from the following book:

http://www.mathworks.com/moler/chapters.html

You will be expected to illustrate your solutions to your TA during the problem session. The other problem sessions will be conceptual. Your TA will solve questions on the board.

Environment for Computations
All computations will be performed in Matlab. Some Matlab resources are listed on the course webpage (please click on the link “Matlab”).

Make-up Policy
If you are not able to take a midterm or a final because of a legitimate reason approved by the health center or the dean’s office, please inform me. You will be eligible for a make-up exam in such a situation.

Academic Integrity
Students at Koc University are expected to maintain their academic integrity. Academic dishonesty in this course in any form will not be tolerated.
Important Dates and Holidays

- February 1, Monday — First Day of Classes
- February 1-5 — Add-Drop Period
- April 11-15 — Spring Break
- April 29, Friday — Deadline to Withdraw
- May 13, Friday — Last Day of Classes
- May 23-June 2 — Finals