

Syllabus for Math 303

Koç University, Spring 2019

Title of the Course: Applied Mathematics

Instructor: Ali Mostafazadeh (Office: Sci.154; Office Hours: Monday & Wednesdays 15:15-15:45 & 17:30-18:00)

Textbook: “Mathematical Methods for Physics and Engineering,” K. F. Riley, M. P. Hobson, and S. J. Bence, 3rd Edition (Cambridge University Press, Cambridge, 2006)

Website: http://portal.ku.edu.tr/~amostafazadeh/math303/math303_S2019/math303.htm

Topics to be covered: Complex numbers; calculus of several real variables; vector calculus; calculus of a single complex variable; Dirac delta function; Fourier series and Fourier transform

Objective: To provide the student with a basic knowledge of some of the standard mathematical methods used in natural sciences and engineering. This includes the calculus of several variables, optimization in the presence of Lagrangian constraints, Green, Divergence and Stokes’ theorems, complex-valued and complex-analytic functions, residue theorem and its applications in evaluating definite integrals, elementary discussion of generalized functions, Dirac delta function, Fourier series, and Fourier transform.

Evaluation method: Students’ progress will be evaluated according to their performance in homework assignments, four extended quizzes (mini exams of up to 50 minutes), a midterm and a final exam. These will contribute to the final grade of the student according to: Homeworks 15%, quizzes 40%, midterm exam 20%, and final exam 25%. The schedule for quizzes and exams are posted in the webpage of Math 303.

Eligibility to take the final exam: In order to take the final exam a student should not miss more than 8 lectures and his/her average grade in the midterm and quizzes must not be below 30 out of 100. If a student misses more than 8 lectures and has a valid excuse for all of them, then (s)he will be allowed to take the final exam only if (s)he has taken at least two of the quizzes and the midterm exam or three of the quizzes and her/his average in these is not below 40 out of 100. A student who is not eligible to take the final exam will automatically fail the course and will not be allowed to take the remedial exam.

Attendance & Bonus: Students are strongly advised to attend all the lectures and PSs. n bonus points will be added to the final exam grade of the students who attend $20+n$ lectures.

Policy for Homeworks: Homework papers will be collected in class. The assistant will not accept late homeworks nor will (s)he return them directly to the students. Late homework papers will be accepted within a week from their due date, but they will be subject to 50 points deduction of the grade.

Make-ups: If a student misses a quiz or the midterm exam and has a valid excuse, his (her) grade in the final exam will be substituted for the grade in the missed quiz or exam. If (s)he also misses the final exam, (s)he will be given zero in the quiz(zes) and the midterm exam that (s)he has missed regardless of whether (s)he has a valid excuse or not. If a student misses the final exam and has a valid excuse, (s)he will be given a make-up exam.

Auditing Students: In order to get an AU, a student must attend at least 20 lectures.

Suggested Method of Study: Students are advised to study the subjects covered in class immediately after the lectures. Reading the lecture notes and the book is necessary for grasping the subject, but it is by no means sufficient. Students must try to reproduce the definitions, proofs of the theorems, and derivations of the results covered in class on their own. They are expected to spend an average of three hours per week on studying the material covered in class in addition to the time spent on homework assignments.