MATH 3410.003/006. Differential Equations I.

Fall 2015 .003/MWF 9:00 to 9:50, BLB 225; .006/MWF 11:00 to 11:50, BLB 225. Information on this sheet applies only to Sections 003 and 006. The two sections are not interchangeable. I also teach MW 12 to 1:20, so I cannot stay after class at 12 to answer questions; however, I will hold office hours near BLB 225 MWF 10 to 11.

"Required" Textbook. William Boyce and Richard di Prima, Elementary Differential Equations and Boundary Value Problems, Wiley, ISBN 978-0-470-45831-0. All assigned homework will be independent of the textbook and available as pdf files on blackboard. If you attend classes and take notes, you may not need the textbook; on the other hand, some people find having a textbook reassuring and useful.

Final and test dates. There are three tests, tentatively on Friday, September 25, Friday October 23, Friday November 13. Check the UNT website for the final schedule:

for 003 MWF 9 to 9:50, the final is on Wednesday, December 9, 8 to 10am, usual classroom BLB 225

for 006 MWF 11 to 11:50, the final is on Monday, December 7, 10:30 to 12:30, usual classroom BLB 225.

Homework. Homework will be assigned, once a week, almost always due on Friday. Hardcopies will be given out and pdf files will be available on blackboard. Homeworks are required, you should turn them in. and they will be graded. However, the grade will not be part of the final grade; I regard the homework grade as a backup; if you do not do well on the tests or final but do well on the homework, you can use your homework grade as a means of appeal.

Attendance. You are expected to attend all scheduled classes. Attendance means attendance during the entire class period! If necessary, I will check attendance for random class periods.

Grades and exams. Your final grade is determined by three tests (25% each) given during the semester and the final (25%). I will hand out review sheets before each test and the final. The letter grade will be given strictly according to the recommended university standards: D = at least 60%, C = at least 70%, B = at least 80%, and A = at least 90%. Acceptable excuses for missing a test or the final are: illness or injury requiring professional medical attention, deaths of an immediate family member, or injury accidents. You may be asked to furnish documentary proof. Alternate tests will be different from the regular test and

may be graded using a different procedure. Requests for alternate tests must be made *in person* during class or office hours *no later than one week* after the regular test day.

Your tests (but not the final) will be returned to you, usually the first class day following the test. You should be in class to pick up your test. No responsibility will be taken for tests which are not picked up within two weeks.

Prerequisites and code of conduct. As stated in the catalog, you should have taken MATH 1720 (second semester calculus) and 2700 (linear algebra). You will need to have current knowledge of second semester calculus and eigenvalues/eigenvectors from linear algebra. Having a prerequisite course means that you have *current* knowledge of the material covered in that course as stated in the official syllabus regardless of what your instructor for that course actually covered.

I expect you to behave in accordance with the student code of conduct. There will be **zero** tolerance of violations of this code: this particularly applies to cheating during tests and the final.

I also expect you to behave with courtesy and consideration to your fellow students (and to me), particularly during class periods. Cell phones should always be turned off. Computers/Laptops can only be used during class for things directly related to the class material.

Other matters. All university policies will apply to this course. Any requests arising from university policy *(including but not limited to a request for accomodation for certified disabilities or religious observances* **at any time during the semester***)* must be submitted to me in writing before 5 pm on Wednesday, September 2. Your request must be delivered to me in person during one of the scheduled class periods and a signed receipt must be obtained from me for any request to be valid.

Important note about schedules, review sheets, and other handouts.

Schedules are given out every week. The schedules are intended to give you useful information. Handouts, such as review sheets, will also be given out. Information on schedules or handouts might be changed and errors will be corrected; these amendments will be announced on blackboard and during class. You are responsible for keeping track of these amendments, as well as making sure you get all the schedules and other handouts. Almost every handout will be available on blackboard.

Fine print. There are **no** verbal agreements in this course. If you think that I promise you something, be sure to get it from me in writing! This handout is intended as an general

guide to the policies pertaining to the administration of this course. This handout does not replace or supercede any official university document.

Instructor. Joseph Kung. GAB 471C. Office hours: MWF 10 to 11 (held near BLB 225), M 8 to 9, 2 to 3:30 (held in my office GAB 471C); other times by appointment.

e-mail: kung@unt.edu [Expect some delay when using email. Email from smartphones may arrive in an unreadable form. Be sure to put MATH 3410 Differential Equations on the subject line. Email without this heading may be regarded as clutter and unread.]

Phone 940-565-4084.

Tentative syllabus.

This is a introductory course on differential equations. A rough syllabus for this course is the following:

Weeks 1 to 3. First order differential equations, vector fields, modeling (escape velocity and logistic population growth), separation of variables, integrating factor, exact differential equations and potentials, Euler method, Picard existence theorem.

Weeks 4 to 7. Second order linear differential equations. Space of solutions, Wronskians, variation of parameters.

Weeks 8 to 10. Series solutions, Laplace transforms.

Weeks 11 to 14. System of first order equations. Qualitative theory and phase space.