Lei Zhang
Department of Mathematics

Course 1 (Fall 2020) MAP 4305/5304 DIF EQUA EG & PHY SCI/INTERMED DIFF EQUATNS

Sections: MAP 4305 section 0099 5-Digit 16347 MAP 5304 Section: 3234depx 5-Digit: 16353

Time and Location

MWF2, 8:30-9:20am Online.

Office Hour: MWF 11:00am-12:00pm.

Description and Goals

Prerequisite: MAP 2302 is required. It is also desirable to have a decent understanding of a Linear Algebra course.

We will cover much of Chapters 8,9, and 10 of the textbook. This includes
Series solutions, Matrix methods for systems,some elementary Partial Differential Equations and Eigenvalue Problems.

Homework/Textbook

Homework will be regularly assigned and collected regularly.

Fundamentals of Differential Equations and Boundary Value Problems, 6th Edition,
by R. Kent Nagle, Edward B. Saff and Arthur David Snider. Most of my lectures will be based on this textbook.

Final Grades: There will be three in class mid-term exams (20% each) , which will all be based upon the suggested problems. 10% of the grade will come from homework problems. The final exam is worth 30%.

Exam 1 Sept 28 (mid-term)

Exam 2 October 26 (mid-term)

Exam 3, November 23 (mid-term).

Final Exam: TBA.

Schedule of topics:

Taylor Polynomial Approximation, Power Series and Analytic Functions, Power Series Solutions to Linear Differential Equations, Equations with Analytic Coefficients, Method of Frobenius, Finding a second linearly independent solution, Linear Algebraic equations, Linear System in Normal Form, Homogeneous Linear System with Constant coefficients, Complex Eigenvalues, Nonhomogeneous Linear Systems, The matrix Exponential Functions, Method of Separation of Variables, Fourier Series, Fourier Sine and Cosine Series, The Heat Equation, The Wave Equation, Laplace Equation, then possible topics in Chapter 11 as well, if time permits.

Grading Scale:

Grades will then be assigned based upon the following scale: A 88% – 100% B+ 83% – 87% B 78% – 82% C+ 75% – 79% C 70% – 74% D+ 65% -69% D 60% – 64% E 0% – 59%

Attendance and Late Policy

Attendance of lectures is voluntary. Make-up exams can be allowed if the student can provide documents to verify the EXTREMELY urgent nature of his/her absence.

ABSOLUTELY NO MAKEUPS WITHOUT MEDICAL DOCUMENTATION. Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at :

https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx

Students that need accommodation

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, www.dso.ufl.edu/drc/) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Information on current UF grading policies for assigning grade points:

https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

Information on course evaluation

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at https://evaluations.ufl.edu. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at https://evaluations.ufl.edu/results/.

Requirements on class attendance, make-up exams and other things:

Students are required to attend all the lectures. Make-up exams can only be given under extremely rare situations and the students must provide convincing documents to show the extremely urgent nature of absence. Look at the following link for guidance:

https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx

The Mathematics Department is committed to diversity and inclusion of all students. We acknowledge, respect, and value the diverse nature, background and perspective of students and believe that it furthers academic achievements

It is our intent to present materials and activities that are respectful of diversity: race, color, creed, gender, gender identity, sexual orientation, age, religious status, national origin, ethnicity, disability, socioeconomic status, and any other distinguishing qualities.

Our class sessions may be audio-visually recorded for students in the class to refer back and for enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voice recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the “chat” feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials by students or any other party is prohibited.

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