Instructor: M. Carme Calderer  (www.math.umn.edu/mcc)  
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Office Hours: Wednesday, 4:45-6:15 pm, Thursday, 1:30-2:30 pm, Friday, 2:45-4:00 pm and by appointment.  


Course Prerequisites: Single variable calculus (Calculus I and Calculus II); Multivariable Calculus; Elementary differential equations; Beginning programming or working knowledge of Matlab (or other mathematical software).  
I strongly recommend that you take a Matlab tour on linear algebra, ordinary differential equations, boundary value problems, and also on the PDE-toolbox.  

Course description: This course is the second part of a two-semester sequence aimed at providing an introduction to the theory and application of numerical approximation techniques. The two parts of the sequence (i.e., Math 5485 and Math 5486) may be taken independently. Although Math 5485 is not a prerequisite to Math 5486, students who did not take the former occasionally may need to independently review some topics covered in Math 5485. Please, do not hesitate to contact me if you run into any difficulties.  
We will cover methods to solve linear systems, iterative techniques in matrix linear algebra, approximation theory, numerical solutions of nonlinear systems, boundary value problems for ordinary differential equations, and some topics on numerical solutions of partial differential equations.  

Sections: We will (approximately) cover the following sections of the book:  
6.1-6.6; 7.1–7.5; 8.1, 8.2, 8.5, 8.6; 10.1–10.4; 11.1–11.4; 12.1, 12.4.  

Homework and Assignments: There will be a homework assignment (approximately bi-weekly), two midterm and the final examinations. Students are encouraged to work on teams for the assignments. The grade of the course will be based upon a weighted average of homeworks and examinations:  
Homework: 20 %;  
Midterm I (Wednesday, March 2) and Midterm II (Wednesday, April 6): 20 % each;  
Final exam (during final examination week, as scheduled in the May 9-13, 2016): 40 %.  

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