MAT5711 Scientific Computing Fall 2017

Professor David Rollins

August 25, 2017

Contact Information

Email: **davidr@ucf.edu**

Office: MAP 404, MW 2:00 -3:00 PM, 3:30 - 4:30 PM. If these times don't work for you, set up an appointment either in class, or by email.

Course Information

Prerequisites: MAC2313 (Calculus 3), MAP2302 (Differential Equations), MAS3105 (Matrix and Linear Algebra) or the equivalent. You should feel very comfortable with applying the theorems from Calculus as well as doing the calculations.

Course Description: Introduce the basic ideas of scientific computing and learn to use software to study algorithms used in computational mathematics.

On-line Materials: Assignments, announcements, grades, changes to the syllabus, links to software tutorials, and other materials will be posted on Webcourses.

Text: Numerical Mathematics and ComputingAnalysis (7th edition), Ward Cheney and David Kincaid, Brooks-Cole.

Software: MATLAB - provided on apps.ucf.edu. If you are so inclined you can purchase this software, see www.mathworks.com. OCTAVE is a similar software to MATLAB that is open access and can be downloaded at www.gnu.org/software/octave/

Topics: 1 Preliminaries; 2 Computer Arithmetic; 3 Introduction to MATLAB 4 Solution of Nonlinear Equations; 5 Approximating Functions; 6 Numerical Differentiation and Integration.

Homework: There will be assigned homework that will be graded. Some problems will be theoretical and others computational that requires use of software. Assignments should be turned in on the assigned day either as hard copy to me or submitted online through Webcourses.

Financial Aid: All faculty members are required to document students' academic activity at the beginning of each course. In order to document that you began this course, please complete the academic activity given by the end of the first week of classes, or as soon as possible after adding the course, but no later than August 28. Failure to do so will result in a delay in the disbursement of your financial aid. **This activity will be a one question assignment on Webcourses due August 28.**

Grades: Homework 20%, computer projects 30%, Midterm and final Exams 50%. Grades will be assigned as follows: 92-100 A, 90-91 A-, 88-89 B+, 82-87 B, 80-81 B-, 78-79 C+, 70-77 C, 68-69 C-, 59-67 D, 0-58 F.

Important Dates: Labor Day: Sept. 4, Withdrawal deadline: Oct. 30, Veteran's Day: Nov. 10 Thanksgiving Break Nov. 23-25, Last Day of Classes Dec. 2. Final Exam TBA.