

## University of Mobile Spring 2008

**COURSE:** MA 497 – *Introduction to Numerical Analysis*.

**CREDIT:** 4 semester hours.

**PREREQUISITE:** MA 201 – *Differential Calculus*.

**COURSE DESCRIPTION:** The primary objective of this course is to become comfortable using technology to aid in the solutions of various types of mathematics problems as well as the presentation of these solutions. Several numerical methods focussing on solutions of equations, interpolation and polynomial approximation, differentiation and integration, and perhaps several topics in linear algebra will be discussed throughout the semester. The software to be used includes (but is not limited to) GNU Octave and  $\text{\LaTeX}$ . MATLAB is one of the leading numerical software packages for scientific computing, and Octave is a free, open, and compatible alternative to MATLAB.  $\text{\LaTeX}$  is a high quality typesetting system with features designed for the production of technical and scientific documentation.  $\text{\LaTeX}$  is the *de facto* standard for the communication and publication of scientific documents.

**OBJECTIVES:** Mathematics, Critical Thinking Skills, and Computer Programming.

**EVALUATION:** Throughout the semester, there will be a series of homework assignments designed to assess an understanding of the course topics. Each of these assignments will focus on numerical method(s) used in solving various types of mathematics problems. There will also be at least two course projects consisting of more difficult problems. Presentation of homework assignments and projects are to be typeset using  $\text{\LaTeX}$  and submitted electronically. In addition to these assessments, there will be an in-class midterm and final examination. Course grades will be determined holistically from these assessments.

**ATTENDANCE:** Students are expected to attend all class meetings.

**CLASS PARTICIPATION:** Students are expected to participate in classroom discussions and solve and assist others with the solution to in-class problems.

**TEXTBOOK:** *Numerical Analysis, 8<sup>th</sup> Edition*, R. Burden and D. Faires, Brooks Cole, ISBN: 0534392008.

**OTHER:** Students must abide by the standards of the Academic Integrity Code found in the Student Handbook. For students with disabilities and for dress code policies, also refer to this handbook. The University policies concerning incompletes are found in the current University catalog.

**INSTRUCTOR:** Troy Henderson, 315 Weaver Hall, [thenderson@umobile.edu](mailto:thenderson@umobile.edu). Personal homepage is located at <http://www.tlhiv.org>. Office hours will be announced; however, an *open door* policy will be observed. Appointments will also be accepted.