MATH 502  Numerical Methods in Applied Mathematics

1. Catalog Description

MATH 502 Numerical Methods in Applied Mathematics  4 units

Prerequisite: MATH 344 or AERO 300, an introductory college-level programming course, and graduate standing.

Introduction to advanced numerical analysis. Numerical techniques for solving ordinary and partial differential equations, error analysis, stability, methods for linear systems. Not open to students in math major or master's degree program in mathematics. 4 lectures.

2. Required Background or Experience

MATH 344 or AERO 300, an introductory college-level programming course, and graduate standing.

3. Learning Objectives

The student should:

a. Assess the appropriateness of a given numerical scheme for the solution of an ordinary or partial differential equation by calculating the accuracy and determining the stability of the scheme.

b. Apply standard numerical techniques to solve ordinary and partial differential equations.

4. Text and References

The text is to be chosen by the instructor. Suggested texts include:


5. Minimum Student Materials

Paper, pencils, notebook, and access to computing equipment.

6. Minimum University Facilities

Classroom with ample chalkboard space and computer lab.
7. **Expanded Course Content**

   Below is one possible week-by-week outline:

   **Week 1**

   **Week 2**

   **Week 3**

   **Week 4**

   **Week 5**

   **Week 6**

   **Week 7**

   **Week 8**

   **Week 9**

   **Week 10**

8. **Methods of Assessment**

   Exams, homework, and possibly student presentations.