# MAT 3535: Introduction to Maple, Matlab, and \LaTeX

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Spring Semester, 2006

## 1 Introduction to Maple 10

### Topics

Day 0  
(a) Background and History

Day 1  
(a) Intro to Computer Algebra  
(b) The First Steps: Calculus on Numbers  
(c) Basic Numeric Data Structures

Day 2  
(a) Variables and Names  
(b) DAGs  
(c) Evaluation  
(d) Polynomials and Rational Functions

Day 3  
(a) Manipulation of Polynomials and Rational Functions  
(b) Functions

Day 4  
(a) Differentiation  
(b) Integration and Summation

Day 5  
(a) Series, Approximations, and Limits  
(b) Simplifications

Day 6  
(a) Graphics

Day 7  
(a) Solving Equations  
(b) Differential Equations

Day 8  
(a) The LinearAlgebra Package

Day 9  
(a) The Assume Facility

### Enhancement Topics

1. Getting Around with Maple  
2. Internal Data Representation  
3. Composite Data Types

## 2 Introduction to Matlab

1. Intro to Matlab

## 3 Introduction to \LaTeX

1. The \LaTeX Typesetting System

2. \AMS-\LaTeX: The AMS Document Classes (amsart, amspdoc, amsbook) and the amsmath and amsthm Packages


## 4 Textbooks

### Required


### Reference

- Frank Mittelbach, et al., The \LaTeX Companion, Addison Wesley.
- Helmut Kopka and Patrick Daly, A Guide to \LaTeX, Addison Wesley.
- Leslie Lamport, \LaTeX: A Document Preparation System