

# Mathematics 270: Scientific Programming

Spring Semester 2008

Ave Maria University  
Dept. of Mathematics and Physics

Week	Date	Lecture Topic
1	Jan 14	Scientific, Symbolic, and Graphical Computation (0.1, 0.2)
	Jan 16	Symbolic Computation (0.3.1)
	Jan 18	Symbolic Computation (0.3.2)
2	Jan 21	Numbers, Vectors, and Functions (1.1, 1.2, 1.3)
	Jan 23	Explicit and Implicit Representations (1.4.1)
	Jan 25	Parametric Representations (1.4.2)
3	Jan 28	Polynomial Representations (1.4.3)
	Jan 30	Procedural Representations (1.4.4)
	Feb 01	Procedural Representations (continued)
4	Feb 04	Rendering Line Segments (1.5.1.1)
	Feb 06	Rendering Circles (1.5.1.2)
	Feb 08	Interpolation and Polynomials (2.1, 2.2)
5	Feb 11	Lagrange Interpolation (2.3)
	Feb 13	Piecewise Linear Interpolation (2.4.1)
	Feb 15	Representations for Polynomial Curves (2.4.2)
6	Feb 18	Representations for Polynomial Curves (continued)
	Feb 20	Putting the Pieces Together (2.4.3)
	Feb 22	General Space Curves (2.4.4)
7	Feb 25	Computational Methods for Polynomial Evaluation (2.5)
	Feb 27	Transforming Curves (2.6)
	Feb 29	Polynomial Surfaces (2.7)
8	Mar 03	<b>Reading Day - no classes</b>
	Mar 05	<b>Midterm Exam</b>
	Mar 07	<b>Midterm Exam</b>
9	Mar 10	Integration and Riemann Sums (4.1, 4.2.1)
	Mar 12	Trapezoid Rule (4.2.2.1)
	Mar 14	Simpson's Rule (4.2.2.2)
10	Mar 17	Piecewise Cubic Interpolation (4.2.2.3)
	Mar 19	Compound Integration (4.2.3)
	Mar 21	<b>Good Friday - no classes</b>
Mar 24 -- 28		<b>Spring Break - no classes</b>
11	Mar 31	Adaptive Numerical Integration (4.2.4, 4.3)
	Apr 02	Monte Carlo Methods (4.4)
	Apr 04	Representation of the Real Numbers (5.1)
12	Apr 07	Integers and Fixed-Point Numbers (5.1.1)
	Apr 09	Floating-Point Numbers (5.1.2)
	Apr 11	Polynomial Series (5.2)
13	Apr 14	Fourier Series (5.3)
	Apr 16	Intersection Problems (6.1)
	Apr 18	Symbolic Computation of Zeroes (6.2)
14	Apr 21	Piecewise Approximation of Zeroes (6.3.1)
	Apr 23	Bisection (6.3.2)
	Apr 25	Newton-Raphson Method (6.3.3)
15	Apr 28	Secant Method (6.3.4)
	Apr 30	Review
	May 02	<b>Reading Day - no classes</b>
May 05 -- 08		<b>Final Exam - date and time to be determined</b>