Course Outline – Math 143 BC

Spring 2012

Class 1 – Wednesday, January 18
Lecture: Course Information (syllabus, textbook info, calculator info)
Review of equations
Natural Numbers, Integers, Rational and Real Numbers and their decimal presentation
Homework: Questions
Extra Credit Assignment: Prove that the set of all rational numbers is closed under addition, subtraction, multiplication, and division.
Also posted: Review of exponents 1

Class 2 – Monday, January 23
Lecture: Completing the square (Part 1, Part 2, Part 3), Review of factoring 1
Triangle inequality and standard labeling
Also posted: Quiz 1 Review, Graphing straight lines, Linear word problems

Class 3 – Wednesday, January 25
Lecture: Pythagorean theorem, Radical expressions, Completing the square – part 4
The parabola $y=x^2$
Also posted: Quiz 2 Review, Factoring 2, Word Problems 2

Class 4 – Monday, January 30
Lecture: Graphing parabolas 1, Writing equations of lines, Similar triangles
Also posted: Quiz 3 Review, solving linear systems (substitution, elimination)

Class 5 – Wednesday, February 1
Lecture: Graphing parabolas 2, Quadratic inequalities, Circles 1
Also posted: Quiz 4 Review, Basic percent problems

Class 6 – Monday, February 6
Lecture: Optimization 1, Non-linear systems
Also posted: Quiz 5 Review

Class 7 – Wednesday, February 8
Lecture: Arithmetic sequences, The quadratic formula, Radical equations
Also posted: Exam 1 Information, Review for Exam 1

Class 8 – Monday, February 13
Lecture: Review for Exam 1, Arithmetic sequences

Class 9 – Wednesday, February 15
Exam 1
Also posted: Quiz 6 Review

Class 10 – Wednesday, February 22
Lecture: Right triangle trigonometry
Also posted: Quiz 8 Review, Extra credit Assignment 1

Class 11 – Monday, February 27
Lecture: Arcs and Sectors, Trigonometric identities 1
Also posted: Quiz 9 Review

Class 12 – Wednesday, February 29
Lecture: Circles 2, Functions, Domain of functions
Also posted: Exam 2 Information, Exam 2 Review

Class 13 – Monday, March 5
Lecture: Review for Exam 2, Angle measurement, Rotational angles, Arithmetic, geometric, and harmonic means
Also posted: Quiz 10 Review, Quiz 11 Review
Extra Credit Assignment: Extra credit Assignment 2
Also posted: Quiz 10 Review, Quiz 11 Review

Class 14 – Wednesday, March 7
Exam 2

Class 15 – Monday, March 12
Lecture: Unit Circle definition of trigonometric functions, Symmetries of the unit circle, Logarithms 1
Also posted: Quiz 12 Review, Trigonometric identities 2

Class 16 – Wednesday, March 14
Lecture: Basic trigonometric equations, Basic functions and their graphs
Also posted: Quiz 13 Review
Extra Credit Assignment: Prove that $f(x)=x^3$ is a one-to-one function.

Class 17 – Monday, March 19
Lecture: Trigonometric equations 2, Logarithms 2
Also posted: Quiz 14 Review
Extra Credit Assignment: Prove that $\log_2 b - \log_2 c = \log_2 (b/c)$

Class 18 – Wednesday, March 21
Lecture: Logarithms 2, Transformations of functions
Also posted: Quiz 15 Review

Class 19 – Monday, March 26
Lecture: Trigonometric identities 3, Rational inequalities
Class 20 – Wednesday, March 28
Lecture: Trigonometric identities 3, Exponential equations, Tangent lines to parabolas (completing the square, using the discriminant)
Also posted: Exam 3 Information, Review for Exam 3
Extra Credit Assignment:
1) Prove the sum formulas for sine and cosine.
2) In class we solved the problem: find tanx if tan2x=0.75. Explain why both solutions are correct!

Class 21 – Monday, April 9
Lecture: Review for Exam 3, Limits at Infinity, Geometric sequences
Also posted: Quiz 16 Review

Class 22 – Wednesday, April 11
Exam 3
Also posted: Quiz 17 Review

Class 23 – Monday, April 16
Lecture: Limits at Infinity 1 , Limits at Infinity 2, division of polynomials (3.3), graphing sinx and cos x (5.3), sum-product and product-sum formulas (7.3)
Also posted: Quiz 18 Review
Extra Credit Assignment: Graph each of the following functions:
1) y=csc x 2) y=sec x 3) y=tan x

Class 24 – Wednesday, April 18
Lecture: Another way to multiply binomials, Graphing polynomials 1,
The Law of Sines (6.5), the Law of Cosines (6.6),
Discontinuities of rational functions: vertical asymptotes and holes (3.7)
Also posted: Quiz 19 Review

Class 25 – Monday, April 23
Lecture: Half-angle formulas, The Law of Sines (6.5), Infinite geometric series
Also posted: Quiz 20 Review

Class 26 – Wednesday, April 25
Lecture: The Law of Sines – the ambigious case (6.5), Graphing polynomials - 2, Inverse functions
Also posted: Final Exam Information, Review for the Final Exam
Extra Credit Assignment: Compute the angle between the bonds connecting two hydrogen atoms to the carbon atom in the methane molecule CH_4

Class 27 – Monday, April 30
Lecture: Graphing the reciprocal of a graph, Graphing rational functions

Class 28 – Wednesday, May 2
Lecture: Graphing y=secx, y=cscx and y=tanx, Inverse trigonometric functions (worksheet)

Class 29 – Monday, May 7
Lecture: Graphing trigonometric functions, Final Review

Class 30 – Wednesday, May 9
Final Exam