

SYLLABUS—MATH 103—Spring 09—section 10295

T,Th, 2:40-5:00, SC104

Recommended Text: Bittinger and Ellenbogen, 7th ed.

| wk. | Date | Section | Worksheet number/ List of topics and skills. | Misc. Notes |
|-----|------|-----------------------|--|--------------------------------------|
| 1 | 1/20 | 4.1-4.2 | 1. Sets, unions, intersections, intervals, inequalities in one variable. | |
| | 1/22 | 4.3 | 2. Absolute value equations and inequalities. | |
| 2 | 1/27 | 2.1-2.2 | 3. Functions; domain and range. | |
| | 1/29 | 2.3-2.5 | 4A. Linear equations and linear functions | |
| 3 | 2/3 | | 4B. Linear models | |
| | 2/5 | 3.1-3.2, 3.4 | 5. Linear systems in 2 and more variables. | 2/8 census: last day to add a class. |
| 4 | 2/10 | 3.6 | 6. Matrices and row reduction. | |
| | 2/12 | 3.3, 3.5 | 7. Word problems (linear in several variables). | |
| 5 | 2/17 | | Review 1. (Begin next topic) | T 2/17: first drop date. |
| | 2/19 | | EXAM 1: covers worksheets 1-7 | |
| 6 | 2/24 | 4.4, 4.5 | 8. Systems of inequalities and linear programming. | M 2/23: P/NP deadline |
| | 2/26 | 7.8 | 9. The Complex Numbers | |
| 7 | 3/3 | 7.1-7.2 | 10. Radicals and associated functions. | |
| | 3/5 | 7.3-7.5 | 11. Operations with radicals. | |
| 8 | 3/10 | 7.6, 7.7 | 12. Equations with radicals and applications | |
| | 3/12 | 8.1, 8.2, 8.4, 8.6 | 13. Quadratic functions | |
| 9 | 3/17 | 8.7-8.8 | 14. More on Quadratics. | |
| | 3/1 | | Review 2. (Begin next topic) | |
| 10 | 3/24 | | EXAM 2: covers worksheets 8-14 | |
| | 3/26 | 10.1 | 15. Circles and nonlinear systems | 3/27: midterm grades available. |
| 11 | 3/31 | 5.1-5.6, 6.6 | 16. Polynomials (some material not in book). | |
| | 4/2 | 6.1-6.3 | 17. Rational expressions | |
| 12 | 4/7 | 6.4 | 18. Rational equations | |
| | 4/9 | | 18, continued: More time with rational equations, and simple variation problems. | |
| 13 | 4/14 | | NO CLASS Spring Break | |
| | 4/16 | | Spring Break... | . |
| 14 | 4/21 | 6.8 | 19. Variation. | |
| | 4/23 | 9.2 | 20. Exponential functions. | F 4/24: last drop date. |

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| 15 | 4/28 | | Review 3. | |
| | 4/30 | | Exam 3: covers worksheets 15-20 | |
| 16 | 5/5 | 9.1 | 21. Composition and inverse functions. | |
| | 5/7 | 9.3-9.5 | 22. Logarithms. | |
| 17 | 5/12 | 9.6-9.7 | 23. Exponential and logarithmic equations with applications. | |
| | 5/14 | | Review | Last regular class meeting |
| 18 | 5/19 | | Final Exam: comprehensive, in class: 2:10-5:00 | |

Student Learning Outcomes. These are represented by the following skills list.

1. Solve absolute value equations and inequalities.
2. Be proficient in factoring polynomials of 2, 3, and 4 terms.
3. Solve quadratic equations by factoring, completing the square, and the quadratic formula.
4. Solve rational equations.
5. Solve radical equations.
6. Solve exponential equations.
7. Solve logarithmic equations.
8. Solve polynomial and rational inequalities.
9. Solve systems of equations in 2 or more variables, using substitution, elimination, and matrix methods.
10. Solve equations reducible to quadratic.
11. Solve a system of linear inequalities by graphing
12. Solve linear programming problems.
13. Simplify exponential expressions that involve integer as well as rational exponents.
14. Simplify radical expressions that involve indices greater than or equal to 2.
15. Perform arithmetic operations on radical expressions with indices greater than or equal to 2.
16. Find union and intersection of numerical sets.
17. Solve non-linear systems of equations.
18. Write equations of lines given a slope and y-intercept, a slope and a point, or 2 points.
19. Perform arithmetic operations on complex numbers.
20. Simplify complex fractions.
21. Apply the Binomial Theorem.
22. Become proficient in the vocabulary of functions.
23. Become proficient in the application of functions, including composite functions.
24. Sketch graphs of linear functions.
25. Sketch graphs of quadratic functions by finding x and y intercepts, vertex and axis of symmetry.
26. Sketch exponential functions.
27. Sketch logarithmic functions.
28. Sketch circles by finding the center and radius.
29. Apply distance and midpoint formulae.
30. Understand ratios of sides in 30-60-90 triangle and isosceles right triangle.
31. Solve applications of linear equations.
32. Solve applications of linear inequalities.
33. Solve applications of quadratic equations including motion problems, geometric problems, and problems involving the Pythagorean theorem.
34. Solve applications of rational equations.
35. Solve applications of radical equations.
36. Solve applications of exponential and logarithmic equations including growth and decay and compound interest applications.
37. Solve applications of direct and inverse variation.