

## **MATH 5**

Textbook: Precalculus. Miller and Gerken. First Edition. Integrated in ALEKS 360.

### **Suggested number of 50-minute lectures:**

0.5 lecture – R.5 Equations with real solutions.

0.5 lecture – R.6 Complex numbers and more quadratic equations.

1.0 lecture – R.7 Applications of equations.

0.5 lecture – R.8 Linear, compound and absolute value inequalities.

0.5 lecture – 1.2 Circles.

0.5 lecture – 1.3 Functions and relations.

0.5 lecture – 1.4 Linear equations in two variables and linear functions

1.0 lecture – 1.5 Applications of linear equations and modeling. (Omit regression.)

0.5 lecture – 1.6 Transformation of graphs.

0.5 lecture – 1.7 Analyzing graphs of functions and piecewise-defined functions.

1.0 lecture – 1.8 Algebra of functions and function composition.

1.0 lecture – 3.1 Inverse functions.

1.0 lecture – 2.1 Quadratic functions and applications.

1.0 lecture – 2.2 Introduction to polynomial functions.

0.5 lecture – 2.3 Division of polynomials; remainder and factor theorems.

0.5 lecture – 2.4 Zeros of polynomials. (Omit Descartes and Bounds.)

1.0 lecture – 2.5 Rational functions.

1.0 lecture – 2.6 Polynomial and rational inequalities.

1.0 lecture – 3.2 Exponential functions.

1.0 lecture – 3.3 Logarithmic functions.

1.0 lecture – 3.4 Properties of logarithms.

1.0 lecture – 3.5 Exponential and logarithmic equations and applications.

1.0 lecture – 3.6 Modeling with exponential and logarithmic functions. (Omit logistical and regression models.)

1.0 lecture – 4.1 Angles and their measure. (Omit arc length, sector, and angular velocity.)

1.0 lecture – 4.2 Trigonometric functions defined on the unit circle.

1.0 lecture – 4.4 Trigonometric functions of any angle.

1.0 lecture – 4.3 Right triangle trigonometry. 6.1 Applications of right triangles.

1.0 lecture – 4.5 Graphs of sine and cosine functions.

1.0 lecture – 4.6 Graphs of other trigonometric functions.

1.0 lecture – 4.7 Inverse trigonometric functions.

1.0 lecture – 5.1 Fundamental trigonometric identities.

0.5 lecture – 5.2 Sum and difference formula.

0.5 lecture – 5.3 Double-angle and half-angle formulas.

1.0 lecture – 5.5 Trigonometric equations.

1.0 lecture – 7.4 Vectors.

1.0 lecture – 8.1 Systems of linear equations in two variables and applications.

1.0 lecture – 8.3 Partial fraction decomposition.

1.0 lecture – 8.4 Systems of nonlinear equations in two variables.

1.0 lecture – 8.5 Inequalities and systems of inequalities in two variables.

1.0 lecture – 10.1 The ellipse.

1.0 lecture – 10.2 The hyperbola.

1.0 lecture – 10.3 The parabola.

2.0 lectures – 11.1 Sequences and series. 11.2 Arithmetic sequences and series. 11.3 Geometric sequences and series. (Omit annuity.)