

**RIDGECROFT SCHOOL
PRECALCULUS**

PACING GUIDE

TOPICS/CONCEPTS	TIME	CURRICULUM OBJECTIVES	RESOURCE: PRECALCULUS, Larson, Hostetler (Publisher: Houghton Mifflin, 1997) ISBN 0-669-41741-6
FIRST GRADING PERIOD	30 Days		
PREREQUISITES GRAPHICAL REPRESENTATION OF DATA <ul style="list-style-type: none"> • Least Squares vs Median-Median Line • Absolute Value Equations and graphs • Standard Deviation • Central Tendency 	10		TEXTBOOK: Chapter P Appendices A6-A20
FUNCTIONS AND THEIR GRAPHS <ul style="list-style-type: none"> • Mathematical Modeling • Composition of Functions • Inverse Functions • Data Analysis • Greatest Integer Function 	15	1.01, 2.01	TEXTBOOK: Chapter 1 SUPPLEMENT: Relations
POLYNOMIAL AND RATIONAL FUNCTIONS <ul style="list-style-type: none"> • Data Analysis • Solving Real Problems 	5	1.02, 2.01	TEXTBOOK: Chapter 2
SECOND GRADING PERIOD	30 Days		
POLYNOMIAL AND RATIONAL FUNCTIONS <ul style="list-style-type: none"> • Data Analysis • Maximum/minimum points • Solving Real Problems 	15	1.02, 2.01	TEXTBOOK: Chapter 2 and (p. 202-204)
EXPONENTIAL AND LOGARITHMIC FUNCTIONS <ul style="list-style-type: none"> • Data Analysis • Solving Real Problems 	15	1.02, 2.01	TEXTBOOK: Chapter 3
THIRD GRADING PERIOD	30 Days		
EXPONENTIAL AND LOGARITHMIC FUNCTIONS <ul style="list-style-type: none"> • Data Analysis • Solving Real Problems 	5	1.02, 2.01	TEXTBOOK: Chapter 3
FUNCTIONS: POWER, LOGISTIC, PIECEWISE, <ul style="list-style-type: none"> • Data Analysis 	5	2.01	TEXTBOOK: SUPPLEMENT
TRIGONOMETRY <ul style="list-style-type: none"> • Unit Circle • Graphs of Sine and Cosine • Applications and Models 	15	2.02	TEXTBOOK: Chapter 4
REVIEW AND ASSESSMENT	5		
FOURTH GRADING PERIOD	30 Days		

TRIGONOMETRY • Unit Circle • Graphs of Sine and Cosine • Applications and Models	5	2.02	TEXTBOOK: Chapter 4
ANALYTIC TRIGONOMETRY AND ADDITIONAL TOPICS • Law of Sines • Law of Cosines • Vectors	20	1.03, 2.02	TEXTBOOK: Chapter 5
SYSTEMS OF EQUATIONS MATRICES	5		TEXTBOOK: Chapters 7, 8
FIFTH GRADING PERIOD	30 Days		
SEQUENCES PROBABILITY • Binomial Probability Theorem	15	2.07 SUPPLEMENT: Recursive	TEXTBOOK: Chapter 9
CONICS	15	1.02	TEXTBOOK: Chapter 10 Sections 10.1-10.5
SIXTH GRADING PERIOD	30 Days		
PARAMETRIC GRAPHING POLAR GRAPHING	20	2.05, 2.06 FOCUS: • Problem solving • Integrating technology	TEXTBOOK: Chapter 10 Sections 10.6-10.7
EXPLORING LIMITS	5	2.08	TEXTBOOK: SUPPLEMENT
REVIEW AND ASSESSMENT	5		

NC STANDARD COURSE OF STUDY

Pre-Calculus provides students an honors-level study of trigonometry, advanced functions, analytic geometry, and data analysis in preparation for calculus. Applications and modeling should be included throughout the course of study. Appropriate technology, from manipulatives to calculators and application software, should be used regularly for instruction and assessment.

Prerequisites:

- Describe phenomena as functions graphically, algebraically and verbally; identify independent and dependent quantities, domain, and range, input/output, mapping.
- Translate among graphic, algebraic, numeric, tabular, and verbal representations of relations.
- Define and use linear, quadratic, cubic, exponential, rational, absolute value, and radical functions to model and solve problems.
- Use systems of two or more equations or inequalities to solve problems.
- Use the trigonometric ratios to model and solve problems.
- Use logic and deductive reasoning to draw conclusions and solve problems.

GOAL 1: THE LEARNER WILL DESCRIBE GEOMETRIC FIGURES IN THE COORDINATE PLANE ALGEBRAICALLY.

- 1.01 Transform relations in two dimensions; describe the results algebraically and geometrically.
- 1.02 Use the quadratic relations (parabola, circle, ellipse, hyperbola) to model and solve problems; justify results.
- Solve using tables, graphs, and algebraic properties.
 - Interpret the constants and coefficients in the context of the problem.
- 1.03 Operate with vectors in two dimensions to model and solve problems.

GOAL 2: THE LEARNER WILL USE RELATIONS AND FUNCTIONS TO SOLVE PROBLEMS.

2.01 Use functions (polynomial, power, rational, exponential, logarithmic, logistic, piecewise-defined, and greatest integer) to model and solve problems; justify results.

- Solve using graphs and algebraic properties.
- Interpret the constants, coefficients, and bases in the context of the problem.

2.02 Use trigonometric and inverse trigonometric functions to model and solve problems; justify results.

- Solve using graphs and algebraic properties.
- Create and identify transformations with respect to period, amplitude, and vertical and horizontal shifts.
- Develop and use the Law of Sines and the Law of Cosines.

2.03 For sets of data, create and use calculator-generated models of linear, polynomial, exponential, trigonometric, power, logistic, and logarithmic functions.

- Interpret the constants, coefficients, and bases in the context of the data.
- Check models for goodness-of-fit; use the most appropriate model to draw conclusions or make predictions.

2.04 Use the composition and inverse of functions to model and solve problems.

2.05 Use polar equations to model and solve problems.

- Solve using graphs and algebraic properties.
- Interpret the constants and coefficients in the context of the problem.

2.06 Use parametric equations to model and solve problems.

2.07 Use recursively-defined functions to model and solve problems.

- Find the sum of a finite sequence.
- Find the sum of an infinite sequence.
- Determine whether a given series converges or diverges.
- Translate between recursive and explicit representations.

2.08 Explore the limit of a function graphically, numerically, and algebraically.