

# PRECALCULUS

2010

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## COURSE OVERVIEW

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The main goal of Precalculus is for students to gain a deep understanding of the fundamental concepts and relationships of functions. Students will expand their knowledge of quadratic, exponential, and logarithmic functions to include power, polynomial, rational, piece-wise, and trigonometric functions. Students will investigate and explore mathematical ideas, develop multiple strategies for analyzing complex situations, and use graphing calculators and mathematical software to build understanding, make connections between representations, and provide support in solving problems. Students will analyze various representations of functions, sequences, and series. Students will analyze bivariate data and data distributions. Students will apply mathematical skills and make meaningful connections to life's experiences. Precalculus is highly recommended preparation for students who plan to continue their formal education beyond high school.

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## COURSE MATERIALS

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*Textbook:* Precalculus 4<sup>th</sup> edition, Larson Hostetler

*Daily Materials:*

Students are expected to supply a 3-ring binder for this course with dividers headed as notes, homework, quizzes, and tests. Students should supply their own loose leaf paper, graph paper, and pencils. I suggest that each student buy some form of the Ti-84 or the Ti-Nspire. If the students chose not to purchase one of the listed calculators, they may use one of mine during class only. These calculators are the same calculators that are required by most colleges.

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## TEACHING METHODS

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The teacher will engage students in many different teaching methods. Students will work cooperatively in groups on a daily basis to discuss and solve problems. Students will also participate in inquiry, role-play, debate, socratic seminar, and jigsaw based lessons. These teaching methods will require students to hypothesize and investigate solutions, work with others, design explanations using research and theory, and explain Calculus topics to peers.

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## EVALUATION INFORMATION

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The student's grade will be based on several factors: homework assignments, quizzes, projects, and tests. Graded assignments shall not be submitted in ink. The nine weeks average will be computed using the following weighting scheme:

Tests: 34%

Homework/Projects: 33%

Quizzes: 33%

In addition, the semester grade is calculated by allowing each nine weeks grade to count as 1/3 of the grade and the semester exam to count as 1/3.

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Quizzes and tests will model concepts applied during class and homework exercises. Homework will be assigned nightly and quizzes will be given frequently. Homework grades are based both on processes shown to solve and amount completed. Homework will be collected each day. It is expected that students put forth exemplary effort on each problem assigned.

Projects are extended activities intended to assess both depth of understanding and skills needed to solve real-world problems using calculus.

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## COURSE CALENDAR

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### 1<sup>st</sup> nine weeks

Preparing for Precalculus

Functions from a Calculus Perspective

Powers, Polynomials, and Rational Functions

### 2<sup>nd</sup> nine weeks

Trigonometric Functions

Trigonometric Identities and Equations

Systems of Equations and Matrices

### 3<sup>rd</sup> nine weeks

Conic Sections and Parametric Equations

Vectors

### 4<sup>th</sup> Nine weeks

Polar Coordinates and Complex Numbers

Sequences and Series

## INSTRUCTOR INFORMATION

Instructor: Mr. Lance Key

School Email Address: [lkey@fcsweb.net](mailto:lkey@fcsweb.net)

School Phone Number: 615-449-1573

Planning Period: 9:35 – 11:10 on Tuesday and Thursday

I generally arrive at school by 7:00 a.m. I am more than happy to meet before school or during lunch. Please give advance notice if you would like me to come at another time.