



Course Syllabus

Pre-Calculus 2020-2021

Objective: Pre-calculus is an in-depth continuation of concepts learned in Algebra 2. While the topics are familiar, the depth of treatment requires a deeper understanding of the underlying mathematical concepts. Completing practice problems is essential. The course will focus on developing a strong foundation of pre-calculus concepts. It is comprehensive, rigorous, and fast-paced, so students must spend time to keep up. Successful completion of this course will provide students with the tools necessary to excel in their high school precalculus classes and will provide them with the skills necessary to excel in AP Calculus AB or AP Calculus BC.

Prerequisites: Algebra 2/ Trigonometry

Instructor Contact Information:

Dr. Larry McMahan

larry.mcmahan@fremontstem.com

Website:

All course materials (waiver, syllabi, etc.) will be posted on the course website under “Pre-Calculus.” at www.fremontstem.org. In addition, a copy of the textbook, and all quizzes and other course materials will be available in the Google Classroom (classroom.google.com) for the class.

Class Times:

Tuesdays: 6:00 PM to 7:30 PM. Sept 15 – Nov 19, Dec 1 – Dec 15, Jan 5 – Mar 30, Apr 13 – Jun 1. There will be a total of 36 classes.

Assistance:

Students may email the instructor for help on difficult problems.

Required Materials:

- Notebook for taking notes
- Folder for handouts, worksheets, etc.
- Graphing Calculator (Note: some Precalculus teachers allow a graphing calculator, others do not. If you do not wish to buy one, you can use a scientific calculator and use a website to graph functions when required)
- Pencils, erasers, etc.

Program Cost: \$575 tuition

Note: the full program cost is due on the first day of lecture, either in person (cash/check) or via Paypal online. If the student for some reason must miss the first day, the fees must be paid by the first attended lecture. The program fee is non-refundable unless unexpected and severe circumstances arise.



Books and Course Material: This course will use Larson's Precalculus with Limits. A Graphing Approach, Fifth Edition. A pdf of the textbook will be available in the Google classroom for the class.

Homework: There will be regular homework assignments, and they are optional. However, due to the heavily technical nature of the class, it is to the students' advantage to do all of the homework assignments. Access to the solutions will be provided.

Final Exam: A comprehensive take-home final exam will be administered to ensure that students have learned the curriculum and developed problem-solving skills. We will go over the exam results and explain the difficult problems during the last class. The final exam will also be entered into the progress report.

Tentative Nature of the Syllabus: The contents of this syllabus and attached schedule are tentative in nature and may be subject to change or revision. The instructor holds the right to make changes to the schedule and/or organization of the class as necessary. Students and parents will be identified of any changes via email. In particular, different teachers teach material in a different order. Material in this class will be rearranged to ensure we cover material as it is seen in the high school classroom.

Special Accommodations: If your student requires special accommodations, please notify the instructor as soon as possible.

Tentative Schedule

Dates	Topic
Sept 1 – Sept 15	Functions - translating, stretching and shrinking, composition and combining
Sept 22 – Oct 6	Polynomial and Rational Functions - real zeros, FTA, asymptotes
Oct 13 – Oct 27	Exponential and Logarithmic Functions - properties of logarithms, solving equations
Nov 3 – Nov 19	Trigonometric Functions - unit circle, right triangles, trig functions, inverse functions, applications
Dec 1 – Dec 15	Analytical Trigonometry - Fundamental identities, solving, multiple angle formulas, half angle formulas
Jan 5 – Jan 19	Additional Trigonometry - law of sines, law of cosines, vectors in the plane, dot product, trigonometric representation of complex numbers
Jan 26 – Feb 9	Linear Systems and Matrices - solving – gauss-jordan elimination, Matrices: inverse and determinant
Feb 16 – Mar 2	Sequences, Series, Probability – arithmetic and geometric sequences, mathematical induction, Binomial Theorem, counting, probability.
Mar 9 – Mar 23	Analytical Geometry – conics: circles, parabolas, ellipses, hyperbolas. Rotation and quadratics, parametric equations, polar coordinates, polar equations of conics
Mar 30 – Apr 20	3D Analytical Geometry - 3D coordinates, vectors in space, cross product, lines and planes in space
Apr 27 – May 11	Limits - Techniques, tangent line problem, limits at infinity and limits of sequences.
May 18 – Jun 1	Review and final. (We will also cover any “special topics” you teacher decides to cover at this time (introduction to differentiation, etc)

**Note: Lecture and lab days are subject to change if unexpected circumstances arise.*