Canyon Crest Academy: Advanced Topics in Mathematics

Level of Difficulty	Estimated Homework	Prerequisites
☐Moderate ☒Difficult ☐Very Difficult	0-30 minutes	District Department C test average in AP Calculus

Course Description

The purpose of this course is for students to gain an appreciation of skills and concepts in the high school mathematics curriculum, while providing them with a foundation for future math courses and other disciplines reliant on mathematics. This course will serve to develop students' problem solving and reasoning skills through the solving of university level undergraduate and graduate mathematics including Group Theory, Combinatorics, Number Theory, Euclidean/non-Euclidean Geometry, Differential Equations (Calculus based), Real Analysis (Calculus based), Complex Geometry and more in individual and group settings. Additionally, students will refine their communication skills, expand the skills necessary to work in a collaborative setting, and provide a platform for students to draw connections among mathematical concepts and their community. Students will be responsible for individual research, synthesizing information, presenting findings, running lessons and appropriate critique of others' work.

Qualities of a perspective Advanced Topics student:

- -Self-motivated
- -Mature
- -An independent worker
- -A good communicator
- -Not afraid of making mistakes in front of a class

This course is not intended to be taken in lieu of Integrated Math 3 Honors, Intro to Calculus, or AP Calculus. It is **not recommended** that a student enroll in Advanced Topics before completing AP Calculus. The intention of this course is to have a post-Calculus math course that allows a student to explore advanced math without significantly increasing out of class workload.

Grading

A very significant portion of the grade is determined by a student's active involvement in presenting to the class, research findings, daily participation, and an instructional unit to the class through a sequence of lessons. On average, assignments will be completed in class and there will be minimal homework. Course assignments could include written response questions, essays, class presentations, computational and paragraph explanation of problems, and individual and group discourse evaluations. Students will perform peer evaluations to provide feedback to the class and are expected to be self-reflecting their work and content knowledge throughout the course.

Syllabus Link

Supplemental Information

10 Credits
Meets high school graduation requirement for math or electives
Meets UC/CSU subject area "c" requirement