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Algebra 2 2026-2027
Meeting times: T/Th 1:15-2:35pm, F 10:15-10:55am

Algebra 2 Course Syllabus

Course Overview:
Algebra 2 is a rigorous course designed to build upon a student's background in Algebra 1 and Geometry and to prepare them for higher level mathematics courses, including Calculus and Statistics, and higher level thinking. (This course can be taken prior to Geometry as well – Algebra I is the critical prerequisite.) Upon successful completion of this course, a student will be qualified for Pre-Calculus followed by Calculus or Statistics. While some topics covered in this course are not necessarily new to the student, they are covered in more depth at a higher level than before and connected to other disciplines as well.

Course Objectives:
A student who successfully completes the course will be able to:
• Analyze equations and inequalities
• Graph linear equations and functions, special functions, transformations
• Solve systems of linear equations and inequalities
• Applying equation solving/systems of equations to word problems
• Explore quadratic functions and inequalities
• Perform operations with polynomials and rational expressions
• Perform operations with radical expressions and rational exponents
• Inverse functions – solving and graphing
• Explore exponential and logarithmic functions, including natural logarithms
• Explore rational functions
• Investigate sequences and series
• Analyze conic sections
• Investigate probability and statistics, normal distribution
• Explore and perform operations with matrices
• **Intro to trig: Radian measure, sine, cosine, tangent functions and their reciprocals, periodic functions
• **Trig identities and solving equations
** These topics will also be covered in Pre-Calculus, so Algebra II students will see and delve into them during their math journey.

A variety of teaching methods are used to meet the needs of all students. They include:

- Formal lecture involving note taking
- Group work
- Demonstrations of techniques
- Guided practice
- Small projects/long-term assignments
- Online learning (Khan Academy, Aleks, other)

Homework:
This will be a "flipped classroom", which means that most of our in-class time will be spent doing difficult problems and group activities. Weekly homework will include watching video lectures and taking notes on them, solving a small number of introductory problems, engaging with media by writing short reflections or playing games, and completing portions of long-term projects. The exact responsibilities will vary weekly.

Classwork: In-class work will include class discussions about the material, group worksheets, and individual assignments. You will be asked to work together to solve difficult problems and reflect on your knowledge and study habits. You are expected to come to class every day. Make-up work will be allowed on a case-by-case basis, so please keep me updated on any emergencies or sicknesses that will cause your absence.

Exams and Quizzes: There will be 2 semester exams throughout the year and a variety of quizzes. All exams and quizzes will be taken individually without help from any outside resources. For all quizzes that you take, you will have the opportunity to recover some of the points you lost by submitting a corrected version of your work. Corrections must be submitted *within one week* of receiving your graded exam back. For any grade *50% or higher*, you can earn back *half of the lost credit* for each corrected part of your work.

For one quiz only, if your original grade is *above 0% and below 50%*, submitting a complete and accurate corrected version of your quiz will raise your grade to *70%*.

To receive credit for corrections, your work must be *accurate, handwritten, well-presented, and complete*. Corrections should show that you understand the mistakes you made and how to correct them.

Make-up quizzes may be offered if an absence is communicated beforehand and excused.

Grading scale:
Projects: 30%
Lecture notes: 4%
Homework: 10%
In-class groupwork: 20%
Quizzes: 20%
Final 1: 8%
Final 2: 8%

Academic Integrity: In this world of AI, it may be very tempting to use LLMs to complete your homework, projects, writing assignments, and coding assignments. If you do this, I will likely notice, which will result in an automatic F on the assignment as well as serious consequences beyond this classroom. Even if I don't notice, well, the only person you are hurting is yourself. This class is a lot of work, but *learning* is a lot of work, and that's what you're here for.
That being said, there are ways of using AI to enhance learning. This will be discussed at the beginning of the semester and throughout.

Furthermore, all work you submit must be your own. I encourage you to collaborate on everything except for exams and quizzes, but each student must submit their own papers in their own handwriting which shows their own understanding of the material. The only thing that may be turned in as a group is a group project report.

Extra sources:
Khan Academy
Aleks online math
Paul's online notes
My chemistry tutor (youtube)
Desmos

Me! If you are having trouble with any particular concept or you need extra help, feel free to email me at helenarevprep@gmail.com.