

**ALGEBRA II**  
**09-10 COURSE SYLLABUS**  
**Mr. Petty**

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**Course Description:** The content and questions of this course integrate geometry, probability, statistics, and discrete mathematics together with algebra. Pure and applied mathematics are also integrated throughout. However, algebra is the base from which the various branches of math studied in this course originate. Topics covered include but are not limited to: functions, matrices, systems of equations, quadratics, exponents, radicals, and variation. Upon successful completion of this course, students should be ready to move on to Trigonometry, Algebra III, or possibly College Algebra.

**Instructional Philosophy:** This course will be broken up into chapters. Each chapter will include homework assignments, quizzes, and at least one authentic assessment activity. There will be a major test at the end of each chapter. It is expected that all students will show their steps in the solution process of all problems assigned. In other words, the student must **SHOW THEIR WORK!** You will be given an opportunity to work on assignments in class. This is a privilege. If this privilege is abused, it will be taken away, and you can expect very little time in class to work on homework. An emphasis will be made in this class to focus on the MAP test and the ACT exam and all things leading to our students being successful on these two all-important tests.

**Major Course Goals:**

- 1) Solve 1<sup>st</sup> and 2<sup>nd</sup> degree equations.
- 2) Examine graphs of different types of functions.
- 3) Solve systems of equations in a variety of ways.
- 4) Examine quadratic functions.
- 5) Examine radicals and exponents.
- 6) Solve problems using trigonometric functions.
- 7) Investigate matrices.

**Major Course Objectives/Benchmarks by Quarter:**

**1<sup>st</sup> Quarter**

- 1) Apply operations to real numbers.
- 2) Analyze functions and their properties.
- 3) Solve real-life problems using formulas.
- 4) Analyze properties of variation.
- 5) Investigate matrices and apply operations to matrices.

**2<sup>nd</sup> Quarter**

- 1) Understand and compare the properties of linear functions.
- 2) Generalize patterns using explicitly or recursively defined functions.
- 3) Use and solve systems of linear equations or inequalities with 2 or 3 variables.
- 4) Investigate matrices and apply operations to matrices.

**3<sup>rd</sup> Quarter**

- 1) Analyze Quadratic Functions.
- 2) Apply properties of exponents to simplify expressions or solve equations.
- 3) Use a variety of representations to demonstrate an understanding of very large and very small numbers.
- 4) Explore imaginary (non-real) and complex numbers.
- 5) Use and apply factoring techniques to simplify expressions or solve equations.

**4<sup>th</sup> Quarter**

- 1) Understand and compare the properties of exponential and logarithmic functions.
- 2) Identify quantitative relationships and determine the types of functions that might model a situation.
- 3) Use trigonometric relationships with right triangles to determine lengths and angle measures.

- 4) Explore radicals and square roots.
- 5) Use technology to solve real-life problems.

**Major Course Projects and Instructional Activities:** Instructional Activities will include but are not limited to: Lecture, Homework Assignments, Authentic Assessment Activities (Math Labs), Quizzes, Chapter Tests, Semester Finals, Reading Assignments, and Writing Assignments. There will be a major project each semester. The project during the first semester will be the “Linear Programming Project”. This project involves using systems of linear equations and inequalities to maximize the profit of a specific business. The project during the second semester will vary.

**Course Assessment Plan:** Tests and quizzes will be worth 55% of your grade. Homework, authentic assessments, and projects will be worth 25 % of your grade. Each quarter there will be a quarter exam worth 20% of your grade. Your final course grade for the semester will be based on the following: 1<sup>st</sup> quarter (50%), 2<sup>nd</sup> quarter (50%).

**Classroom Expectations:**

- 1) Students will respect their fellow classmates and the teacher.
- 2) Students will always use their ears and minds at all times in class.
- 3) Students will devote the entire period to mathematics.
- 4) Students will not bring food or drinks into the classroom.
- 5) Students will ask questions when they do not understand.
- 6) Students will bring pencil, paper, textbook, and a willingness to learn and work hard to class everyday.
- 7) Students will be expected to attend class everyday (on time). This is a must to be successful in the real-world, as well as school. If you must be absent, try to get your assignments ahead of time if possible.

**Supplies and materials needed:** Bring your textbook to class everyday. You are responsible for your textbook while it is checked out to you. Do not write in it, lose it, or destroy it in any way. Failure to do so will result in a fine. Make sure that you have paper and a writing utensil everyday. While it is not absolutely necessary, I would strongly suggest having a scientific calculator for this class. I will have TI-82 graphing calculators available for in-class use only. These are first come, first serve.

**Homework Policy and Grading Scale:** Please refer to the Student Handbook for the Homework Policy. The grading scale is as follows:

95 +	A	80-82	B-	67-69	D+
90-94	A-	77-79	C+	63-66	D
87-89	B+	73-76	C	60-62	D-
83-86	B	70-72	C-	0-59	F

**Recommended/Required Reading:** In this class, you will be required to read the equivalent of 2 books for the entire year. Most of the reading will be in your textbook. You will be given a reading assignment every chapter and will be expected to read and show understanding of what you have read. You will fill out a reading log for each assignment and turn in the reading log at the end of the semester.

**Extra Help:** I am not here to sit behind a desk and watch students be unsuccessful. I am more than willing to help you be successful in this class. If you need help before school, I usually get here no later than 7:30 a.m. You may also take advantage of our extra help program (P.A.S.S.) after school. Ask what days I am available. I can stay after school any day if you just let me know in advance.

**Time and place to be reached by parent:** My school e-mail is [jpetty@centralr3.org](mailto:jpetty@centralr3.org). This is probably the best and quickest way to reach me. I can also be reached by calling the school at 573-431-2616 EXT 4161 and leave a message. I will get back with you at my earliest convenience.