

**INNOVATIVE CONCEPT ACADEMY**

**COURSE SYLLABUS**

**Advanced Algebra 350**

 **2021 - 2022**

**INSTRUCTOR: Mrs. Liza Wynn**

**CLASS SCHEDULE: 9:10 – 5:100**

**OFFICE HOURS: 11:40 – 12:37**

**CLASS LOCATION: Room 203**

**CONTACT PHONE: 314-623-5665**

**E-MAIL: liza.wynn@slps.org**

**Book: enVision Algebra II**

**COURSE DESCRIPTION**

**Advanced Algebra 350** is the subsequent course to Algebra 150. This course is a continuation of algebraic concepts introduced in Algebra 150. The following concepts are introduced and reinforced: Solving equations, graphing linear equations and inequalities in two variables, determining the slope of a line, solving systems of linear equations, and solving equations of rational expressions.

**RATIONALE**

The rationale for offering **Advanced Algebra 350** is to provide students with a foundation for success in subsequent mathematical courses. This course serves as a prerequisite for College Algebra.

**COURSE GOALS**

The goals of **ADVANCED** **ALGEBRA 350** are to enable students to:

* Understand patterns and relations.
* Understand numbers, ways of representing numbers, relationships among numbers and number systems.
* Understand meanings of operations and how they relate to one another.
* Compute fluently.
* Use visualization and spatial reasoning.
* Organize and consolidate their mathematical thinking through communication.
* Represent and analyze mathematical situations and structures using algebraic symbols.
* Use mathematical models to represent and understand quantitative relationships.
* Analyze change in various contexts.

**COURSE OBJECTIVES**

Students who have successfully completed **ADVANCED ALGEBRA 350** will be fully prepared for subsequent mathematics courses.

At the conclusion of **ADVANCED ALGEBRA 350**, students will be able to:

* + Solve algebraic equations.
	+ Graph equations in two variables.
	+ Determine the slope of a line.
	+ Simplify rational expressions.
	+ Perform basic operations with rational expressions.
	+ Perform basic operations with radicals.
	+ Solve equations involving rational expressions or radical expressions.
* Solve quadratic equations by factoring or using the quadratic formula.

**COURSE KNOWLEDGE BASE**

The goal of Advanced Algebra 350 is to preserve and make possible educational opportunities for each postsecondary learner; to develop in each learner the skills and attitudes necessary for the attainment of academic career and life goals; and to promote the continued development and application of cognitive and affective learning theory. This course is designed to give a thorough treatment of topics in Advanced Algebra, necessary for success in subsequent math courses. The course goals are aligned with the principles and standards of the Missouri Learning Standards.

**PROGRAM GOALS**

The ICA Mathematics program is a secondary program that reflects the latest research in mathematics education and learning theory and supports all learners on their path to college- and career-readiness. To achieve this goal, our program is founded upon three foundational principles:

* **A balanced pedagogy:**

Research has shown that teaching for understanding requires equal attention to helping students develop deep understanding of concepts, fluency with important processes and skills, and the ability to apply these concepts and skills to solve real-world and mathematical problems.

* **A focus on visual learning:**

Recent research (Park & Brannon, 2013) has found that powerful learning occurs when students use different areas of the brain, specifically the area that governs symbolic thinking and the area that focuses on visual thinking.

* **A focus on effective teaching and learning:**

Recent research has shown that students make significant academic gains when they explore “worthwhile tasks” and engage in meaningful mathematical discourse using mathematical language.

**PROGRAM ORGANIZATION:**

At the secondary level, the structure of the Common Core State Standards for Mathematics puts a strong emphasis on mathematical modeling. Not only is there a Standard for Mathematical Practice that highlights modeling with mathematics, but one of the Conceptual Categories in High School Mathematics is devoted to the modeling process. This process, teased out in detail in the GAIMME (Guidelines for Assessment and Instruction in Mathematical Modeling Education) Report, is an iterative process in which students think through a mathematical model for a given real-world phenomenon, apply the model, analyze and assess the solution, and then iterate on the model as needed.

Our program is established to engage students in the mathematical modeling process. The four steps include:

1. Exploration
2. Conceptual Understanding and Application
3. Practice
4. Problem Solving

All aspects of the program are founded upon the Common Core State Standards (CCSS-M) for Mathematics. The architects of the CCSS-M targeted three key shifts for secondary mathematics courses:

1. **Focus** - *Deepening and expanding students’ understanding of important math concepts and developing in students proficiency with applying mathematics to new situations.*
2. **Coherence** - *Helping students make sense of math by seeing the connections between and among concepts both within a course and across courses.*
3. **Rigor** - D*eep authentic command of mathematical concepts.*

**CLASS PROCEDURES**

* **Advanced Algebra 350** is conducted in a VIRTUAL Learning Environment, consisting of a Blended Learning Environment with a combination of Synchronous and Asynchronous learning. A portion of the class period will be conducted in Microsoft TEAMS. This will involve the teacher and students. The other portion of the class will be conducted with the students working independently. Constant contact and communication with the teacher are enabled through the TEAMS platform.
* Attendance and punctuality to the TEAMS class sessions is essential and required. Inconsistent attendance can affect conceptual understanding and performance in a class. Students are expected to log on to their TEAM (class) and to be punctual. A record of each student’s attendance, tardiness and early departure will be recorded. Excessive unexcused absence may lower a student’s grade.
* Students are responsible for obtaining information in reference to missed content when they miss a class. The teacher or classmates should be contacted to find out what was missed.
* Students will gain access to the **enVision** platform in order to access their E-texts and assignments. The teacher will provide the access information.
* It is strongly suggested that students ***read*** their **E-texts** as support for their ongoing learning and assignment completion.

* Students may utilize calculators with basic arithmetic functions.
* Each student must have access to ***enVision.*** This complete online process contains an online version of the textbook with links to multimedia resources, including video clips, practice exercise, etc. Students should find this added support helpful in mastering the concepts.
* A pre-test will be given at the beginning of the course and a final exam will be given at the conclusion of the course. Both of these exams are course requirements.
* Students must demonstrate mastery with a score of 70% or higher on all **Homework Assignments.**
* Students must demonstrate mastery with a score of 70% or higher on all **EXAMS**.
* Students must demonstrate mastery with a score of 70% or higher on all **QUIZZES**.
* On all exams and quizzes, ***all steps must be shown*** in the student’s work.

**COURSE EVALUTAION AND GRADING**

Students in **ADVANCED ALGEBRA 350** will earn grades ranging from A through F. Grading is based on tests, the final exam, effort and attendance.

The **grading distribution** is as follows:

|  |  |
| --- | --- |
| **ITEM** |  **% OF TOTAL POINTS** |
| **HOMEWORK** | **30%** |
| **TESTS** | **40%** |
| **FINAL EXAM** | **15%** |
| **ATTENDANCE** | **10%** |
| **EFFORT** | **5%** |
|  | **100%** |

The **grading scale** is as follows:

|  |  |
| --- | --- |
| **GRADE** | **%** |
| **A** | **90% - 100%** |
| **B** | **80% - 89%** |
| **C** | **70% - 79%** |
| **D** | **60% - 69%** |
| **F** | **Below 60%** |

**RULES AND REGULATIONS REQURIEMENTS**

ICA is committed to graduating students who are prepared to think critically, to act ethically, and to assume responsibility as citizens and leaders. The highest standards of integrity and good behavior are expected from our students.  ***All students are required to adhere to the guidelines and expectations set forth in the St. Louis Public Schools Student Code of Conduct Handbook.***

**POSSIBLE CHANGES**

**This syllabus is subject to change, at the discretion of the instructor. The instructor will inform students of all changes.**

**REFERENCES**

Missouri Learning Standards, Missouri Department of Elementary and Secondary Education, Mathematics Curriculum, (2020)

<https://dese.mo.gov/college-career-readiness/curriculum/mathematics>

Martin-Gay, K. Elayn. (2011).*Prealgebra & Introductory Algebra* (3rd ed.). Upper Saddle

River, NJ: Prentice Hall.

National Council of Teachers of Mathematics. (2008). *Algebra and Algebraic Thinking in*

*School Mathematics, 70th Yearbook.* Reston, VA: Greenes, Carole & Rubenstein, Rheta.

Author (2008). Teaching With Technology. *Mathematics Teacher*, Volume 101, Issue 7, page 549.

Achievement Gaps in Developmental Studies in Mathematics: A View of Community College Students. Linda Serra Hagedorn, PhD. University of Florida.

<http://www.ets.org/Media/Research/pdf/conf_achgap_cc_hagedorn.pdf>