

# EAP SENIOR MATHEMATICS COURSE (ESM)



## BACKGROUND

The ultimate intent of the EAP Senior Year Mathematics (ESM) Course is to better prepare college and career bound high school seniors with the 21<sup>st</sup> Century skills necessary to meet the mathematical thinking and problem-solving expectations of higher education courses and workplace requirements. Through a collective impact model, Region 3 approaches student learning through intersegmental partnership agreements that include Sacramento State University, the local community colleges, county offices of education, and feeder high school districts. The success of the ESM stems from the fact that it is not only a living curriculum and pedagogy that is designed to meet the immediate needs of the rising high school seniors, but it also embodies the structural flexibility to be informed by the vibrant intersegmental professional learning communities. Essentially, the partnership structure affords each educational segment the opportunity to collaboratively define the challenges around preparation in mathematics while providing the foundation to forge better-aligned instructional practices across schools, colleges, and universities for the success of our regional students.

## MAJOR STUDENT OUTCOMES

- Become better problem solvers.
- Build critical thinking skills.
- Increase perseverance to make sense of and to solve real-world and mathematical problems.
- Improve their number sense and procedural fluency.
- Develop their understanding of the underlying structure of mathematics.
- Make connections between the numeric and algebraic expressions and representations.
- Make connections between the conceptual categories of mathematical content.
- Gain appreciation of mathematics and its applications.
- Improve their ability to work communicate their mathematical thinking.
- Develop their ability to work effectively as a member of a team.

## COURSE OBJECTIVES

- Use problem solving strategies in contextual situations to deepen conceptual understandings of the structures and applications of mathematics.
- Flexibly apply problem solving strategies (e.g. logic/deductive reasoning, tables and lists,...) when attacking a problem and communicating thinking and solutions.
- Analyze the information embedded in different types of contextual problems and determine what data is given and what assumptions can be justified.
- Identify and assess the importance of ambiguities and complexities within a problem.

- Examine and apply families of functions including: linear, quadratic, exponential, logarithmic, absolute value, and piecewise.
- Utilize understanding of linear and exponential functions in financial contexts.
- Reflect on their work, edit for clarity and accuracy in order to generalize.
- Provide an appropriate level of justification in an organized viable argument, free from logical and arithmetical errors.
- Demonstrate the Standards for Mathematical Practice when engaged in mathematics.
- Develop a mathematical growth mindset that enables the student to continue to persevere through problem-solving in higher level math courses.
- Work collaboratively within small groups.

## COURSE PURPOSE AND GOALS

This course is designed to strengthen mathematical foundation and to prepare students to be successful in college level math. The goal of the course is to deepen conceptual understandings of mathematical theory, skills and strategies. The course is designed to incorporate National Common Core Standards for Mathematical Practice and is aligned with specific high school standards listed in the Common Core State Standards. Utilizing practical life applications this course serves both college and career bound High School Seniors.

Currently, a significant percentage of students are required to take one or more remedial math courses upon entering college, delaying their entry into college-level math, and possibly their graduation date. The goal of this course is to fulfill the need to provide more math options that support transition to college. The target student cohort is typically seniors who choose to take no math their senior year, thereby placing themselves further behind in their ability to transition smoothly to college-level math. The development of this course was predicated on the idea that students who had previously considered themselves as unsuccessful in math could learn and thrive in an environment which fostered engagement and conceptual learning. With a focus on depth, not breadth, students would master mathematical content and be able to transfer their skills in college and in career pathways.