

EAP SENIOR MATH COURSE (ESM)



BACKGROUND

In 2009, representatives from CSU Sacramento, Sierra College, Placer County Office of Education, and 12 feeder high schools initiated a regional partnership to build college and career readiness and transition success for students. Memorandums of Understanding were adopted to formalize the commitment to, and participation in, the regional collaborative.

EAP college readiness assessments in mathematics, coupled with studies conducted through both Sacramento State and Sierra College's research offices, identified inadequate math skills as a significant factor impacting retention and graduation rates. A Community College Chancellor's Office study completed in 2011 found that 85% of incoming community college students arrive unprepared for college level math. EAP assessment results validated that approximately 50% of high school seniors were only "conditionally college ready" in mathematics after completing high school math graduation requirements.

Since the need for additional college level coursework is expensive, can be demoralizing, and causes a loss of momentum in student progress, lowering persistence, retention and completion rates, the Partners agreed to focus collaborative efforts on creating a senior year math course to better prepare students for college.

The Partners brought teaching faculty from each of the segments together over a two year period to develop, teach, evaluate, assess and revise the ESM course. The pedagogy was specifically designed to allow teachers the flexibility to model the lesson to the learning, rather than the curriculum to a prefabricated schedule and mandates. Additionally, the new Common Core State Standards (CCSS) and changes to high school assessments were incorporated into the course to ensure the curriculum remained relevant in future years. Collaboration and cooperation among the Partners made it possible for high school teachers to receive extensive training in the delivery of the ESM as a new contextualized learning curriculum and provided them their first exposure to common core tenets.

Successful completion of the course provides students who matriculate to Sierra College exemption from the math placement test and eligibility to enroll in any college transfer level math course with a pre-requisite of Intermediate Algebra e.g.: College Algebra, Trigonometry. Students who matriculate to Sacramento State are provided exemption to the Early Start Program and considered to have met the college readiness requirements in mathematics. In 2013-14, UC Doorways approved the course as meeting an a-g college-preparatory elective for those high schools participating in the Placer and Nevada County regional partnership.

COURSE DESCRIPTION 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.

COMPETENCIES AND SPECIFIC COURSE OUTCOMES

1. Linear Functions
2. Quadratic Functions
3. Exponential Functions and Expressions
4. Systems of Equations
5. Rational Expressions
6. Problem solving Strategies
7. Absolute Value
8. Financial Math
9. Geometry

INSTRUCTIONAL STRATEGIES

A variety of strategies are employed including lecture, individual and group work, simulations and the use of discovery through observation. Students are frequently presented with a real life situation that is first modeled through a simulation. They then discuss their findings with their group and make a conjecture about the situation.

OBJECTIVES/GOALS

- Become better problem solvers
- Increase critical thinking skills
- Enhance numeracy
- Gain appreciation of mathematics and its applications
- Increase perseverance to solve math problems that seem unfamiliar
- Work in groups to share mathematical ideas from students point of view
- Improve mathematical communication abilities
- Overcome fear of mathematics