Date Approved by DJUSD Board of Education:

Secondary Course Description

Course descriptions are updated and reviewed with all new text adoptions.

COVER PAGE

1. **Course Title:** Transitions to Quantitative Reasoning
2. **Transcript Title / Abbreviation:** TQR Math
3. **Transcript Course Code / Number** (Office Use Only):
4. **School:** Da Vinci High School
5. **District:** Davis Joint Unified School District
6. **Department:** Math
7. **Graduation Requirement it meets:** Elective
8. **Length of Course:** 1 year
9. **Graduation Credits:** 10
10. **School / District Web Site:** http://www.djusd.net
11. **CBEDS Course Code:**
12. **School Contact**

    Name: Troy Allen

    Title/Position: Director of Secondary Education & Leadership

    Phone: 530-757-5300 **Ext.:** 146

    Fax: 530-757-5423

    E-mail: tallen@djusd.net

13. **Subject Area:**
    - ☐ History/Social Science
    - ☐ English
    - ☐ Mathematics
    - ☐ Science
    - ☐ Language other than English
    - ☐ Visual & Performing Arts
    - ☒ DJUSD Graduation Elective
    - ☐ College Prep Elective (will seek UC/CSU approval)

14. **Grade Level(s):** 12
15. **UC/CSU Requirement:** G College Prep Elective
16. **Seeking "Honors" Distinction?** ☐ Yes ☐ No
17. **GPA Types:**
18. **Credit Value:**
    - ☐ 0.5 (half year or semester equivalent)
    - ☒ 1.0 (one year equivalent)
    - ☐ 2.0 (two year equivalent)
    - ☐ Other: _____
19. **Was this course previously approved by UC?** ☒ Yes ☐ No

    If so, in what year? 2016 **Under what course title?** EAP Math for Seniors
20. **Pre-Requisites:**

    Co-Requisites: Integrated Math II
21. **Preliminary Approval - Secondary Site Principal Signature (Must be signed before proceeding to Step 22):**

    Tyler Millsap
22. **Date Course Proposal with Preliminary Approval (Step 15) sent to Associate Superintendent, Educational Services:** _____
23. **Review & Approval:**

Date		Signature
3/14/19	Site Curriculum and Instruction Leadership Team	Signature/Title Caroline Leamy Teacher
_____	Secondary Department Articulation/Collaboration	Signature/Title TYR

Secondary Principal Signatures: Tyler Millsap

Date: 3-14-2019

BACKGROUND INFORMATION

Brief Course Description:
The units of study revisit previous math concepts such as functions, inequalities, and exponents to provide opportunities for students to develop a greater perspective of the underlying structures of math and how to connect math topics. This course culminates with a relevant in-depth unit on financial mathematics.

Context for Course:

This course is designed to strengthen students' mathematical foundation and prepare students to be college and career ready. 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 content standards listed in the California Common Core State Standards for Mathematics (CCCSS-M). Utilizing real-world applications, this course serves both college and career-bound high school seniors.

The purpose of this course is to fulfill the need to provide more math options for high school seniors to take a mathematics course that better prepares them for transition into college-level work or workplace expectations. The target student cohort is seniors who have met or nearly met the CAASPP/EAP standards and would like exposure to college-preparatory quantitative reasoning in their senior year. It is intended for high school seniors who have completed Algebra 1 and Geometry or Integrated Math I and II and who may not be interested in pursuing a STEM or math-intensive major; who would typically not take math their senior year; who may not be directly CSU/UC bound after high school; or who may be interested in entering the workforce right after high school.

The development of this course was predicated on the idea that students who had previously considered themselves as unsuccessful in mathematics could learn and thrive in an environment which fosters engagement and conceptual learning. With a focus on depth, not breadth, students would master mathematical content and be able to transfer their skills to college and to career pathways. Lessons and tasks provide students with opportunities to solve challenging problems in which they gather, analyze, and evaluate information, work effectively in groups to make decisions using critical reasoning skills, as well as opportunities to communicate concisely through written and oral language. Throughout the course, students increase their perseverance to make sense of and to solve real-world and theoretical mathematical problems, develop a greater perspective of underlying structures of mathematics and how to connect mathematical topics. Students gain an appreciation of mathematics and its applications and develop a growth mindset towards mathematics that enables the student to continue to persevere through problem-solving in the quantitative reasoning nature of college-level courses.

List the State/District Standards addressed in this course.
Problem Solving, Linear Equations and Functions, Quadratic Math, Exponential Functions, Logarithmic Functions, Math of Finance, Absolute Values and Piece-Wise Functions.

History of Course Development:
This course was created by staff at Sacramento State University, submitted to UCOP, and approved by the DJUSD Board of Education under the name EAP Math for Seniors in 2016. Sacramento State, and surrounding colleges have changed the name (for the year 2019-20) in order to more accurately reflect the content. While the course is in place at Davis Senior High School as a "c" math class, Da Vinci Charter Academy would like to offer the course on their campus as a "g" graduation elective.

The **Transition to Quantitative Reasoning (TQR)** course was developed to better prepare college and career-bound high school seniors with the 21st 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 TQR stems from the fact that it is not only a living curriculum and pedagogy that is designed to meet the immediate needs of 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 students.

COURSE GOALS AND/OR MAJOR STUDENT OUTCOMES

Major Student Outcomes

Develop a growth mindset towards mathematics that enables the student to continue to persevere through problem-solving in higher level math courses.

Become better problem solvers.

Build critical thinking skills.

Increase their perseverance to make sense of and to solve real-world and mathematical problems.

Deepen their understanding of underlying structures of mathematics.

Gain appreciation of mathematics and its applications.

Improve their ability to communicate their mathematical thinking.

Develop their ability to work effectively as a member of a team.

COURSE OBJECTIVES

Course Objectives

Demonstrate the Standards for Mathematical Practice when engaged in mathematics.

Flexibly apply problem-solving strategies (e.g., guess and check, logic/deductive reasoning, tables and lists...) to contextual situations to deepen conceptual understandings of the structures and applications of mathematics.

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.

Strengthen number sense and procedural fluency.

Make connections between numeric and algebraic expressions and representations.

COURSE OUTLINE

Content Standards	Key Assignments
Unit 1: Team Building and Problem Solving Unit 2: Linear Functions Unit 3: Quadratic Equations Unit 4: Exponential Functions Unit 5: Logarithmic Functions Unit 6: Systems of Equations + Inequalities Unit 7: Absolute Value + Piecewise Functions Unit 8: Financial Mathematics	For each unit students may: participate in modeling, journals, group presentations, quizzes, tests.

TEXTS AND SUPPLEMENTAL INSTRUCTIONAL MATERIALS

Title, Author, Publisher, Edition: None

Previously Adopted? ☐ **Yes** ☒ **No (If no, provide information directly below)**

Cost per book	Total Cost	Budget Source

Other: The EQR course has received UC program status, with "g" approval in the area of College-Preperatory Electives. Program courses are expected to provide curriculum resources and professional development for school-based instructors to adequately prepare them to teach the standardized curriculum with fidelity. As such, those interested in adopting this course are required to attend the *ESM Professional Learning Program*. Teachers will receive access to the full course only after completing this training.

DIFFERENTIATED INSTRUCTIONAL METHODS AND/OR STRATEGIES

The methods and strategies emphasize student conceptual understanding of practices and differentiation is provided through individual feedback, group work, multiple opportunities to revisit content and demonstrate understanding.

ASSESSMENT METHODS AND/OR TOOLS

Each unit has a performance task to measure mastery of the concepts set for that unit. They are scored with rubrics that inform students of their level of mastery on the understanding of the unit content. Often group presentations, quiz or project performance is used to strengthen understanding of student mastery and serve as assessments. Students and instructors focus heavily on constructing viable arguments and critiquing the reasoning of others and making sense of problems and persevering in solving them. Journal prompts and reflections are used to measure understanding and are also scored with a rubric.

ASSESSMENT CRITERIA

Students are expected to show mastery of core content standards as described above. Letter grades are assigned and a C or better indicates readiness as one of the multiple measures used in Community Colleges, CSU's, and UC systems.

HONORS COURSES ONLY

Indicate how this honors course is different from the standard course.