



Course Name: Advanced Quantitative Reasoning
School Year: 2021-2022

Course Purpose and Relevance:

In **Advanced Quantitative Reasoning**, students will develop and apply skills necessary for college, careers, and life. Course content consists primarily of applications of high school mathematics concepts to prepare students to become well-educated and highly informed 21st century citizens. Students will develop and apply reasoning, planning, and communication to make decisions and solve problems in applied situations involving numerical reasoning, probability, statistical analysis, finance, mathematical selection, and modeling with algebra, geometry, trigonometry, and discrete mathematics.

The **process standards** weave the other knowledge and skills together so that students may be successful problem solvers and use mathematics efficiently and effectively in daily life. When possible, students will apply mathematics to problems arising in everyday life, society, and the workplace. Students will use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution. Students will select appropriate tools such as real objects, manipulatives, algorithms, paper and pencil, and technology and techniques such as mental math, estimation, number sense, and generalization and abstraction to solve problems. Students will effectively communicate mathematical ideas, reasoning, and their implications using multiple representations such as symbols, diagrams, graphs, computer programs, and language. Students will use mathematical relationships to generate solutions and make connections and predictions. Students will analyze mathematical relationships to connect and communicate mathematical ideas. Students will display, explain, or justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

Overview of Student Outcomes:

- The student generates new understandings by extending existing knowledge.
- The student generates new mathematical understandings through problems involving numerical data that arise in everyday life, society, and the workplace.
- The student extends existing knowledge and skills to analyze real-world situations.
- The student creates and analyzes mathematical models of everyday situations to make informed decisions related to earning, investing, spending, and borrowing money by appropriate, proficient, and efficient use of tools, including technology.
- The student uses mathematical relationships to make connections and predictions.
- The student judges the validity of a prediction and uses mathematical models to represent, analyze, and solve dynamic real-world problems.
- The student generates new understandings of probability and statistics
- The student analyzes statistical information and evaluates risk and return to connect mathematical ideas and make informed decisions.
- The student applies a problem-solving model and statistical methods to design and conduct a study that addresses one or more particular question(s).
- The student uses multiple representations to communicate effectively the results of student-generated statistical studies and the critical analysis of published statistical studies.

Available Support for Student Learning:

Refer to the teacher's Course Syllabus for resources and course specific opportunities.

Links to Course TEKS and RESOURCES FOR PARENTS on TEA website:

[Texas Knowledge and Skills for Advanced Quantitative Reasoning](#)
[Resources for Parents](#)



First Grading Period

Unit 1: Analyzing Numerical Data

Unit 2: Probability

Second Grading Period

Unit 2: Probability

Unit 3: Statistical Studies

Semester Review and Campus Exam

Third Grading Period

Unit 4: Network and Graphs

Unit 5: Using Models in Decision Making

Fourth Grading Period

Unit 6: Decision Making in Finance