

College Readiness Mathematics (Capstone Course)

Course Description: The *College Readiness Mathematics Capstone Course* (CRM) is a fourth course option for students who have completed Advanced Algebra (or the equivalent). The course is designed to serve as a bridge for high school students who will enroll in non-STEM post-secondary study and will serve to meet the high school fourth course graduation requirement. The course has been approved by the University System of Georgia as a fourth mathematics course beyond Advanced Algebra (or the equivalent) for non-STEM majors, so the course will meet the needs of college bound seniors who will not pursue STEM fields. The focus of this course is on key content and practice standards to ensure that students will be ready for post-secondary academic courses and career preparation in non-STEM fields. The course will revisit and expand the understanding of content standards introduced in earlier mathematics courses and will emphasize numeracy, algebra and functions, geometry, and statistics in a variety of contexts. Instruction and assessment will include the appropriate use of manipulatives and technology. Mathematics concepts will be represented in multiple ways, such as concrete/pictorial, verbal/written, numeric/data-based, graphical, and symbolic. Concepts will be introduced and used, where appropriate, in the context of realistic experiences. The Standards for Mathematical Practice will provide the foundation for instruction and assessment. The content standards selected are essential for post-secondary preparation in non-STEM study. Students will be expected to complete a mandatory capstone project where they select one of the areas listed in the standard to identify a problem and use mathematical modeling to address it.

Prerequisite: Advanced Algebra (or the equivalent)

Instructional Philosophy: The *College Readiness Mathematics* curriculum is both extensive and comprehensive. Time is a crucial commodity and it must be spent judiciously. Students are expected to stay focused on learning the standards and achieving proficiency. Learning will be achieved and assessed through a variety of in-class instructional activities including (but not limited to):

- Direct instruction including notes and examples
- Peer/Group-based learning tasks focusing on exploration, discovery, and research
- Concept quizzes - to assess a student's grasp of the standards
- Mixed review quizzes - to assess and support a student's retention of standards previously taught
- Summative assessments - to assess the student's overall comprehension and proficiency in the subject matter

If needed, students will participate in additional remediation before school, after school, during ELT/PRIDE period, study hall or Saturday school. Every student will have an opportunity to show mathematical growth in order to gain crucial mathematical knowledge needed to be successful in college or technical mathematics.

Course Goals:

Upon completion of the course, students will be able to:

- Display perseverance and patience in problem-solving. Demonstrate skills and strategies needed to succeed in mathematics, including critical thinking, reasoning, and effective collaboration, and expression. Seek help and apply feedback. Set and monitor goals.
- Apply mathematics to real-life situations; model real-life phenomena using mathematics.
- Utilize exact and approximate calculations to quantify real-world phenomena and solve problems.
- Construct expressions, equations, and inequalities, and use them to represent and solve problems by choosing appropriate procedures and interpreting solutions in context.
- Define, build and interpret functions that arise in various contexts by applying knowledge of the characteristics of the different families of functions, and analyze the effects of parameters.
- Reason deductively and inductively about figures and their properties and make sense of geometric situations using measurements in real-world contexts.
- Make sense of and reason about variation in data using graphs, tables and probability models to solve problems and draw appropriate conclusions from solutions.

Grading Scale:

A: 90 & above: Outstanding quality of work, on time, almost all problems worked out correctly

B: 80-89: Above average quality, on time, some mistakes in worked problems

C: 70-79: Average quality, on time, frequent mistakes in worked problems but concepts generally understood

Course Assessment:

Nine Weeks Grade = 50% (Tests) + 50% (Quizzes)

1st Semester Grade = (1st 9 weeks + 2nd 9 weeks) ÷ 2 x 80% + Semester Exam x 20%

2nd Semester Grade = (3rd 9 weeks + 4th 9 weeks) ÷ 2 x 80% + Semester Exam x 20%

Students may exempt semester exams in accordance with the exemption policy found in the LCHS handbook.

Supplies:

- 1 inch, 3-ring binder - This binder should contain all materials at all times.
- Notebook paper and pencils
- Project supplies (announced as needed)
- Calculator (one will be provided in the classroom)