

Teacher: Michael Kallaher

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Course Description: An innovative course that offers students an exciting new perspective on mathematics, *Mathematical Models with Applications* explores the same types of problems that math professionals encounter daily. The modeling process--forming a theory, testing it, and revisiting it based on the results of the test--is critical for learning how to think mathematically. Demonstrating this ability can open up a wide range of educational and professional opportunities for students. *Mathematical Models with Applications* has been designed for students who have completed Algebra I or Geometry and would like additional math preparation before Algebra II.

Standards: Alignment to the Iowa Core Curriculum: Polynomial, rational and radical relationships; Trigonometric functions; modeling with Functions; and Inferences and conclusions from data.

Assessments: Students will complete both formative and summative assessments throughout the year. Summative (graded) assessments may include quizzes and tests, or other means of measuring progress. There will also be formative (non-graded) assessments, including homework assignments and learning checks.

Content:

Mathematical Modeling	Linear Models from Data	Indirect Measurement
Direct Variation	Systems of Equations	Periodic Functions
Solving equations	Systems of Inequalities	Sound Waves
Solving inequalities	Symmetry	Probability
Measurement (P, A, V)	Transformations	Personal Finances
Functions	Exponential Functions	
Describing Data	Quadratic Functions	

Instructional Strategies: A variety of strategies will be used, including (but not limited to) group work, individual work, teacher-led activities, and problem-based activities.

Core Materials/Resources

1. **Textbook-** *Modeling with Mathematics: A Bridge to Algebra 2*. Crisler, Simundza
2. **Pencils and erasers** – All of your math work should be done in pencil.
3. 3-ring binder with loose-leaf paper *or* notebook with folder for math
 - ★ Taking notes will be necessary throughout the course, so make sure that you always have clean paper.
 - ★ Binder will help to organize handouts, worksheets, and other materials.
4. **Calculator** – **TI 83+ or TI 84 graphing calculator is HIGHLY recommended**, although a scientific calculator will work for most of the content in the course. Please do not purchase a different model unless you consult with me first – if you already have a different calculator, let me know.
5. **Internet access outside of school?**
6. **Planner** - Only **YOUR intact** planner (with cover and ALL pages) will be accepted for use as a pass.

Academic/Behavioral Expectations:

- * If you miss class for any reason, you will be expected to get the notes and the assignment for those days. Please see another student to get a copy of any notes. If you have questions either see me, another teacher, or email me. If you miss a test or quiz, you will be expected to make it up the next day you have an available time. If you are gone for multiple days, see me to schedule a make-up timeline. If you start to fall behind in this class, the secret is to get help IMMEDIATELY. The longer you wait, the worse things become. You can get help from me before, after school (after football season), and 5th period A study. You can also learn a lot by working with your fellow classmates. Working together is strongly encouraged.

General Rules:

- * Attendance is very important. I will be following the school attendance plan for excused, unexcused, and tardies.
- * Cheating will not be tolerated! If you are found to be cheating on any work for the class, consequences may include earning a zero, contacting your parents and Assistant Principal or earning an F for the course.
- * No food or beverages other than water in a clear container will be allowed in this classroom.
- * I will follow the conduct policies outlined in your student planner. This includes responsible use of electronic devices. Should a problem arise, I may contact your parents and/or pursue assistance from the office. I expect you to behave as the mature, responsible, respectful students. Should a problem arise with behavior, attendance, or academics, I may contact your parents and/or pursue assistance from the office.

Grading Plan:

1. **Tests:** Tests will always be announced in advanced.
2. **Quizzes:** Quizzes will *usually* be announced.
3. **Homework Learning Checks (HLC)** – Random problems will be selected from recent homework assignments to be completed and graded for accuracy without notes. All work must be shown.
4. **Other assignments or projects** – Other assignments or projects will be assigned throughout the year. Information will be given at the time the assignment is made.
5. **Extra Credit** - I may make small amounts of extra credit available at various times during the year. Extra credit will not be available during the last week of each semester. When extra credit is assigned a due date, none will be accepted late.
6. **Semester Exam (worth approximately 2 chapter tests)** – Your semester exam will be given one of the last two days of the semester.

Grading Scale: The DCSD grading scale will be followed as listed in your student planner

A 93 to 100	B+ 87 to 89	C+ 77 to 79	D+ 67 to 69
A- 90 to 92	B 83 to 86	C 73 to 76	D 63 to 66
	B- 80 to 82	C- 70 to 72	D- 60 to 62
			F 0 to 59