




## Marine Science Magnet High School

130 Shennecossett Road  Groton, CT  
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### **MTH0130 - Algebra II**

2020-2021

B Day, **Period 7**, Room U118

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#### **Course Description:**

This course will enable the student to gain a richer understanding of the algebraic structure of the real number system. While the emphasis of the course is on manipulative skills, considerable attention is given to mathematical structure and logic. The content of the course includes first degree, linear, and quadratic equations and inequalities, system of equations, data interpretations, matrices, polynomial and fractional expressions, exponents, radicals, complex numbers, conic sections, and inferential statistics. Mathematical modeling, problem solving and multiple representations are stressed. Common Core State Standards are followed. Preparation for SAT is embedded.

#### **Student Learning Expectations and Outcomes:**

*The following MSMHS Learning Expectations are the focus of the Mathematics Program, however, there are several other learning expectations aligned with various assignments within the courses offered in the Mathematics Program.*

- 1. Read and write effectively for a variety of purposes.***
- 2. Speak effectively with a variety of audiences in an accountable manner.***
- 3. Make decisions and solve problems independently and collaboratively.***
- 5. Contribute to a positive learning environment with respect and responsibility.***

#### **Materials Needed:**

Three Ring Binder, 8 Tab Dividers (one for each unit of study), Pens/Pencils, Paper, MSMHS Laptop, TI-83 Plus or TI-84 Plus Calculator

## **Classroom Behavior and Rules:**

Students, teachers, and administrators have the right to expect mutual courtesy, fair and equitable treatment and to be informed of their rights and responsibilities. The goal of the Marine Science Magnet High School is to assist students in developing self-direction, self-discipline, and self-management and to provide opportunities for responsible decision-making. However, in the pursuit of these goals, those students who infringe on the rights of others, or who violate school policies and regulations, will be subject to discipline. The constitutional rights of students and staff shall be preserved and protected.

The conduct of students in school has an important effect on the student's academic achievement, and others in the classroom and the greater school learning environment. While ultimate responsibility for student behavior rests with the parents and the students themselves, the school has an obligation to provide leadership in this respect and to insure that appropriate standards are maintained when students are under school supervision. When anyone's rights are violated or when someone violates the rules and regulations, we must all be concerned. MSMHS is committed to providing a safe, respectful, and nurturing environment in which all students can learn.

## **Tardy Policy**

"Tardy" is defined as being late to school, class or activity without permission of school personnel. Students who arrive to school after 7:30 a.m. must report to the main office. Teachers will not allow students admittance to class after 7:30 without a tardy pass from the office. Oversleeping or missing the bus are not acceptable excuses. Tardies will be dealt with as follows, per semester:

- *1<sup>st</sup> tardy – pass will be given*
- *2<sup>nd</sup> tardy – pass will be given*
- *3<sup>rd</sup> tardy – Final warning - student will have a tardy conference with the Assistant Principal; parent/guardian notified to discuss consequences of continued tardies*
- *4<sup>th</sup> tardy - office detention*
- *5<sup>th</sup> tardy – office detention*
- *6<sup>th</sup> tardy – parent/guardian and student meeting with the Assistant Principal, double office detention, parking privileges revoked and late arrival/early dismissal privilege removed for the remainder of the semester*
- *7<sup>th</sup> tardy – two office detentions*
- *8<sup>th</sup> tardy – two office detentions*
- *9<sup>th</sup> tardy – parent/guardian and student meeting with the Assistant Principal; possible referral to proper authorities; notification of loss of credit*
- *10<sup>th</sup> tardy – loss of 0.5 credit in appropriate class*

## **Homework and Absences**

**Students are responsible for obtaining and completing all homework assignments during the time they are absent, as well as obtaining any materials needed to complete the assignments. Any exceptions must be discussed with the classroom teachers. Students are expected to communicate with their teachers about their absences and expected work.**

## **Make-Up Work**

Students who have been absent are required to consult their classroom teachers about work missed as a result of absence. Students will need to make up missed assignments in a timely manner or in the time specified by the classroom teachers. When absent, the student is responsible for work previously assigned and due on the day he/she returns (unless excused by the teacher). Students

who receive discipline for cutting class must make up the work but may not receive credit for the completed work. Students returning from suspension must complete missing work and/or tests/quizzes within the same number of days as the suspension served. For example, a student suspended for three days has three days in which to make up the work.

### **Late Work**

All teachers will accept late work one week prior to the end of the appropriate quarter as listed on the school calendar available in the Parent-Student Handbook; 50% is the maximum penalty for a late submission. In order to be accepted, the work must be complete and meet all assignment requirements.

### **Assignments and Grading:**

Grading of student performance in courses is based on a fifty-point scale. Overall evaluation in a course is measured in a number of ways: class participation, homework, written work, performance assessments and subjective and objective testing at intervals during the course.

MSMHS teachers create common syllabuses that contain specific policies and procedures specific with to their department's PLCs. Grading is scaled in a uniform manner which allows for a simplistic approach for students and parents to follow. Below is the breakdown of the grading scales for assignments and assessments:

<i>Homework:</i>	<i>10 pt. increments</i>
<i>Classwork:</i>	<i>10 pt. increments</i>
<i>Quiz:</i>	<i>100 pts.</i>
<i>Test:</i>	<i>200 pts.</i>
<i>Lab/Lab Reports:</i>	<i>100 to 200 pts.</i>
<i>Papers/Projects:</i>	<i>100 to 200 pts.</i>
<i>Unit Tasks:</i>	<i>100 to 200 pts.</i>
<i>Midterms &amp; Finals:</i>	<i>400 pts.</i>

Teachers may adjust the amount of points per assignments based upon the rigor, complexity, or time needed to complete the task. Teachers may also announce that homework assignments are worth additional points the day the assignment is due as a "pop quiz." These pop homework assignments are used to ensure that students are putting maximum effort into their homework and classwork assignments.

### **Extra Help:**

Students interested in receiving extra help from teachers, or in meeting with their teacher before or after school, need to schedule a mutually agreed upon time to meet with their teacher. Teachers may require specific procedures for requesting appointments for extra help. Please know that teachers will only be able to meet with students on Wednesdays for a limited time due to regularly scheduled faculty or Professional Learning Community (PLC) meetings beginning at 2:30 pm. All teachers will explain the desired procedures in their course syllabus.

### **Retakes/Extra Credit Policy**

The MSMHS Mathematics Department follows a common policy and will allow retakes at the discretion of the teacher.

**Retake Policy:** The Mathematics Department will allow retakes on assessments provided the student creates a learning plan that is approved by the teacher. The student must reach out to the

teacher with the plan if they would like to retake the assessment. The retake score will replace the original score.

### **Cell Phones**

Cell phones are permitted in school, however, while in class all cell phones must remain in their backpack and on “silent” unless requested to be turned off by the teacher or administrator. Cell phones may be used in class if authorized by the teacher or staff member in the delivery of curriculum and instruction. If a teacher determines a student’s phone needs to be taken away due to the student not adhering to the classrooms rules, the phone will be taken by the teacher and kept in a secure location in the classroom until it is returned to the student. If the student refuses to give up his/her phone, the student will be referred to administration as being insubordinate. Cell phones may be used before, during lunch, or after school hours.

### **Grade/Grade Reporting:**

Grading of student performance in courses is based on a fifty-point scale. Overall evaluation in a course is measured in a number of ways: class participation, homework, written work, performance assessments and subjective and objective testing at intervals during the course. Course grades are an average of quarter grades that includes final exams.

The following table shows the letter grades equivalent to numerical grades and GPA.

<b>Letter</b>	<b>Numerical Equivalent</b>	<b>GPA Equivalent</b>	<b>Honors Weighting</b>	<b>AP/ECE Weighting</b>
A+	97-100	4.3	4.52	4.73
A	93-96	4.0	4.20	4.40
A-	90-92	3.7	3.89	4.07
B+	87-89	3.3	3.47	3.63
B	83-86	3.0	3.15	3.30
B-	80-82	2.7	2.84	2.97
C+	77-79	2.3	2.42	2.53
C	73-76	2.0	2.10	2.20
C-	70-72	1.7	1.79	1.87
D	65-69	1.0	1.05	1.10
F	50-64	0.0	0.0	0.0
P	65-100	-----	-----	-----

## **Academic Integrity:**

To support academic integrity, MSMHS may use a technology tool for plagiarism prevention such as Turnitin.com. Students are required to submit major papers to this service and receive guidelines and training in its use if requested by the teacher. All work submitted by students should be a true reflection of their effort and ability. If submitted work or tests are not, then the student has manifested unacceptable academic behavior.

### **Plagiarism**

Plagiarism is defined as intentionally or unintentionally presenting another's work as your own. Any source material (electronic, written, verbal) accessed to complete an assignment must be cited. Plagiarism includes the following:

- Copying verbatim or blending source material with your own without proper attribution,
- Paraphrasing source materials or borrowing ideas, terms, or concepts without acknowledging the source,
- Inventing sources or false attributions for sources,
- Supplying/selling your work to another or purchasing/copying another's work.

### **Cheating**

Cheating is defined as copying all or part of an assignment or assessment or allowing another to copy your work. It is also doing someone's work or having someone else do your work. Cheating includes the following:

- Using unauthorized materials, devices, or assistance of any kind to complete your work or assessment, including on-line transfers,
- Collaborating on a task without the teacher's authorization, as well as providing or receiving information so as to give/gain an unfair advantage,
- Aiding another in cheating.

### **Other Academic Misconduct**

Other forms of serious academic misconduct include:

- Altering grades,
- Stealing or obtaining test/assessment materials or answers,
- Submitting the same (or nearly the same) work for more than one class without disclosure or approval,
- Falsifying information on school related documents and forms.

ANY behavior that can be defined as cheating/plagiarism represents a violation of mutual trust and respect essential to education at MSMHS. Students suspected of cheating should expect to be questioned by their teacher. Students violating this rule are subject to the following penalties:

- A "zero" on the submitted work; notification of parents; written summary of event and action taken placed in the student file.
- If a student is found to have cheated/plagiarized a second time or is involved in a particularly serious act of cheating/plagiarism, the student will be referred to administration for appropriate penalties beyond those listed above. Additional penalties include such consequences as notification to award and scholarship committees; suspension from class or school and notification to the student's prospective colleges; loss of or disqualification from honors/privileges and positions (e.g. NHS, school leadership position).

## **Course Unit Outline - Enduring Understandings and Tentative Dates:**

*Note: Teacher has discretion to change throughout the year.*

### **Unit 1 - Foundations for Algebra II**

September 2019

#### **Enduring Understandings**

- The properties of equality and inverse operations can be used to solve equations
- Just as properties of equality are used to solve equations, properties of inequalities can be used to solve inequalities.
- An absolute value quantity is nonnegative. Since opposites have the same absolute value, an absolute value equation can have two solutions.

### **Unit 2 – Functions, Equations, and Graphs**

October 2019

#### **Enduring Understandings**

- A pairing of items from two sets is special if each item from one set pairs with exactly one item from the second set
- The same line can be written in different ways. These forms give different information and can more easily model different situations.
- Graphing an inequality in two variables is similar to graphing a line. The graph of a linear inequality contains all points on one side of the line and may or may not include the points on the line.

### **Unit 3 – Systems of Linear Equations**

November 2019

#### **Enduring Understandings**

- To solve a system of equations, find a set of values that replace the variables in the equations and make each equation true
- Systems of inequalities can be solved by graphing. The solution is the set of all points that are solutions of each inequality in the system

### **Unit 4 – Factoring**

November – December 2019

#### **Enduring Understandings**

- Polynomials can be rewritten as factors.

### **Unit 5 – Quadratics**

January 2020

#### **Enduring Understandings**

- Any quadratic function in vertex form can be converted to standard form and vice versa. In standard form, the values of  $a$ ,  $b$ , and  $c$  provide key information about its graph.
- To find the zeros of a quadratic function, you must set the equation equal to zero. The  $x$ -intercepts tell what the zeros are because this is where  $y=0$ . There are many ways to solve a quadratic equation
- A basis for the complex numbers is a number whose square is  $-1$ . Every quadratic equation has complex number solutions; some of these solutions may involve imaginary numbers.

## **Unit 6 – Rational Expressions and Functions**

February – March 2020

### Enduring Understandings

- Basic properties and operations with fractions must be used to simplify, multiply, divide, add and subtract rational expressions.
- When solving an equation involving rational expressions, multiplying by the common denominator can result in extraneous solutions.

## **Unit 7 – Radical Expressions and Rational Exponents**

April – May 2020

### Enduring Understandings

- Corresponding to every power there is a root. If the power of the radicand is greater than the index, the expression can be simplified
- All radicals can be multiplied and divided when either the radicand is the same or the index is the same. Only radicals with a common radicand and index can be added or subtracted.
- Radical expressions are the opposite of exponents; radical expressions can be written and simplified in an equivalent form using rational exponents.
- Radical equations can be solved by isolating the radical and squaring both sides of the equation. This process may introduce extraneous solutions.

## **Unit 8 – Exponential and Logarithmic Functions**

May – June 2020

### Enduring Understandings

- The exponential function  $y = b^x$  is one-to-one, so its inverse  $x = b^y$  is a function. To express “y as a function of x” for the inverse, write  $y = \log_b x$ .
- Logarithms can be used to solve exponential equations; and conversely, exponents can be used to solve logarithmic equations.
- The function  $y = e^x$  and  $y = \ln x$  are inverse functions.