Wachusett Regional High School

Program: Mathematics
Course Name: Precalculus
Teacher(s): Ms. Thunberg
Classroom: C117
Workroom: C122
Email: lindsey_thunberg@wrsd.net

Course Description:

Pre-Calculus CPA is a full-year elective course intermediate between Algebra II and AP Calculus. The course focuses on the development of the mathematical skills, concepts, and techniques required for college-level introductory calculus. Topics include logic, function analysis, linear and nonlinear functions, matrix operations, systems of equations and inequalities, polynomials, rational functions, trigonometric identities and equations, recursion, induction, polar functions, complex numbers, sequences and series, and vectors. Several kinds of practices will be used, including lecture, discussion, working in small groups as well as working with a partner. Where appropriate, we will make use of available technology ranging from scientific calculators to computer software designed for this course.

Instructional Philosophy:

Students will work independently and in teams with other students, teachers, or employers. Students will be expected to conduct research and use a variety of strategies to complete assignments and solve problems.

Students will:

- Become independent learners and analytical thinkers,
- Communicate effectively in written and verbal forms;
- Understand and apply concepts and skills,
- Realize the reasoning behind the steps required to complete assignments,
- Integrate academic and technical concepts,
- Find creative solutions to real-life problems, and
- Use technology responsibly to enhance learning.

Teachers will:

- Describe the skill and its purpose,
- Model the use of the skill,
- Guide student practice using assigned situations, and
- Encourage students to apply their skills in other new situations.

Student activities will include:

- Independent work
- Group work
- Lecture

Topics to be Covered:

Exponential and Logarithmic Functions

- Graphing Exponential and Logarithmic Functions
- Exponential and Logarithmic Relationships
- Solving Exponential Equations
- Exponential Growth and Decay
- Properties of Logs
- Solving Logarithmic Equations
- Compound Interest
- Annuities

Rational and Polynomial Functions

- Operations on Rationals
- Solving Rational Equations
- Decomposing Partial Fractions
- Natural Domain
- Piecewise Functions
- Graphing Rational Functions by Transformations
- Graphing Rationals with Holes/Asymptotes
- Graphing Polynomial Functions
- Applied Max/Min Word Problems

Sequences and Series

- Arithmetic Sequences and Series
- Geometric Sequences and Series
- Infinite Sequences and Series
- Sigma Notation and the nth Term
- Pascal's Triangle
- The Binomial Theorem

Conic Sections

- Circles
- Parabola
- Ellipes
- Hyperbolas
- (systems of conics should time allow)

Trigonometric Functions

- Right Triangle Trig
- Law of Sines
- Law of Cosines
- Area of a Triangle
- Angles and Their Measures
- Circular Functions
- Trig Values of Special Angles

Trigonometric Identities

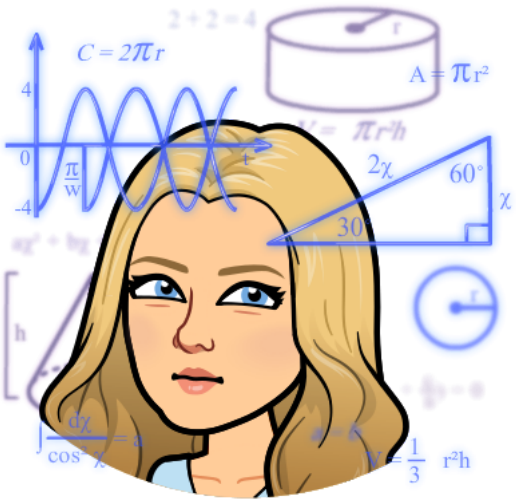
- Trigonometric Identities
- Basic Trig Identities
- Verifying Trig Identities
- Sum and Difference Identities
- Double Angle Identities
- Inverse Trig
- Solving Trig Equations

Graphs of Trig Functions

- Graphs of Trig Functions
- Amplitude, Period, Phase Shift
- Vertical Shift

Matrices

- Basics of Matrices
- Matrix Multiplication
- Gauss Jordan (2 equations, 2 variables)
- Gauss Jordan (3 equations, 3 variables)
- Gauss Jordan word problems
- Determinants
- Cramer's Rule
- Inverses of Matrices
- Solve by Matrix Inverses



Class Rules:

- NO CELL PHONES or other electronics in class unless asked to take out said device
    - Cell phones should be turned on silent & put in the phone cubby after homework and warm-up have been submitted to Google Classroom (5 minutes max)
    - No headphones/earbuds unless you have prior approval
- Raise your hand before speaking
- No food or drink in class (except clear-colored water or a snack during snack period)
- No talking when the teacher is talking
- Come to class prepared to learn (pencils sharpened, laptops charged or plugged in...)

Respect the teacher. This includes, but is not limited to, listening to when the teacher is speaking or teaching, removing hats and hoods while in the building, speaking constructively and respectfully to the teacher, keeping phones put away during class, etc.

Respect your classmates. This includes, but is not limited to, refraining from talking or making noise during a lesson, refraining from bullying of any sort, working constructively with classmates in group work, refraining from eating or drinking a non-water beverage in class, leaving other's material alone, etc.

Respect yourselves. This includes, but is not limited to, arriving on time every day prepared for class, beginning work on the warm-up problems as soon as one is seated, taking thorough notes, completing all expected work, etc.

Communication:

Check PowerSchool and Google Classroom daily. I update PowerSchool weekly and Google Classroom on an "As Needed" basis. It is your responsibility to track your grades and make sure the entered grades are accurate. Parents/guardians are also encouraged to check their student's PowerSchool account and Google Classroom periodically so as to be aware of their student's progress in class. Please do not hesitate to email with any questions or concerns, as that is the quickest and most convenient mode of communication for me.

If you are having difficulty in this class, disagree with a grade, or have any issues with me at all, please talk to me. If you are unsatisfied with the results of our discussion, then talk with a parent or guidance counselor.

Textbook:

The textbook we will be using this year is Advanced Mathematical Concepts: Precalculus with Applications McGraw-Hill. I do not pass out textbooks, but if you would like to sign one out for any reason, please just let me know.

Technology:

Some technology we will be using this year include:

- Google Classroom
- Khan Academy
- Delta Math
- EdPuzzle
- Desmos
- ...And Many More!!!

Chromebooks:

All incoming students will have a Google Chromebook that will be used in a multitude of ways during the school year. Students are expected to bring their computer to school charged every day. The Chromebook will act as the student's main access point for email and Google Classroom. Students will also be asked to download classroom related applications.

You must have only the tabs or applications required for this class open during class. Doing work for other classes, playing games, social media use, etc. is strictly prohibited and will result in loss of the Chromebook for the class and a detention.

Homework is to be completed and brought to class the day after it is assigned. Check Google Classroom for assignments if you are absent. You have one day per excused absence to make up work. Please email or message me via Classroom if there's a reason something is late!

Google Classroom:
All class notes, classwork, homework, study guides, and announcements will be posted in Google Classroom. It will act as one of the forms of communication between student and teacher.

Email:
Students receive a school email address (through Gmail), which will be the main form for direct student-teacher communication. Students are expected to check their email daily.

Classroom Procedures:

1. All students will come to class on time and prepared with supplies to take notes, a charged Chromebook, and any assignments that are due.
2. Upon arrival, students will take out homework, work on the question of the day (found in a designated folder in the classroom), then take a picture of **homework** and **warm-up** and upload it into the day's Google Classroom posting.
3. Put your phone up in the phone pouch once complete (5 minutes max).
4. During class, students will focus on the contents of this class. Cell phones and other classwork will be put away, including other work on Chromebooks.
5. Students will wait until they receive permission to pack up at the end of class.

Materials:

Every student is expected to be prepared for class. You must have a **pencil** and a **graphing calculator**. A **three-ring binder** is recommended but not required for a notebook. A spiral notebook can also be used but a folder is required if you choose this option. This **notebook/folder** will be used for all class notes, handouts, homework assignments, and all quizzes and tests. All material should be dated and organized in a manner that "works" for each individual.

It is an expectation that for this class that you will purchase a Texas Instruments graphing calculator. TI-83, TI-83 plus, TI-Inspire are all great. You do not need to necessarily purchase brand new. Often, you can find them on ebay or Facebook markets. Make sure it does not say "for parts". Casios are cheaper but they are **very difficult** to use. I would **not** recommend a casio graphing calculator.

Grading:

If a student is absent, it is their responsibility to check Google Classroom for assignments. If a student had knowledge of an assignment prior to their absence, it is expected that it will be completed upon their return. If a student had knowledge of a test/quiz prior to their absence it is expected that it will be made up the day of their return. If a student is unaware of a test/quiz/homework assignment announced during their absence, then the student will be allowed two school days to complete the missed work. If the work is not completed after two school days, it automatically becomes a grade of "0". The student handbook will govern absences of two or more consecutive days. All long-term assignments must be handed in on the given due date; no exceptions will be given!

Typically, each chapter will have two quizzes and a chapter test. Quizzes and tests should be done in **pencil**, and all work should be shown in the space available. This is to promote neatness.

Your grade in this course will be composed of the two semesters. The first semester will be weighted as follows:

- 20% - First Quarter
- 20% - Second Quarter
- 10% - Midterm

With the second semester being weighted similarly:

- 20% - Third Quarter
- 20% - Fourth Quarter
- 10% - Final

Semester Grades:
Grading each quarter will be completed based upon a points system. Quarterly grades will be computed as follows: accumulated points divided by total points. Each quarter will consist of roughly 400 points. Please note that these are the points that will count toward each assignment per trimester.

Points (per assignment)	**Criteria**	**Method**
4	Homework/Classwork Grading Breakdown: • 4 - It is clear that the student put a great deal of effort into completing the assignment. The solutions were accurate. The process used to solve each problem was complete and easy to follow. • 3 - Represented satisfactory work. The student may have lost a point due to incorrect solution(s), an incomplete assignment, not following directions, or a vague process. • 2-1 - Represents less than satisfactory work. The student either did not attempt the problem(s) or made little attempt to follow the homework procedures. No process was shown. • 0 - Missing: the student did not pass in the assignment.	Independent and group work, warm-ups, extended learning assignments, Do Now, and classwork
15 - 25	Quizzes	Short assessments, math skills and concepts, and terminology
100	Tests/Projects	Projects, short answer and open response questions, and unit tests

Make-Up Work and Extra Help:

Students are required to make up all work missed due to absence. All work not turned in on the day it is due will be entered in PowerSchool as a "0" and will be marked accordingly: "absent" if the student was absent, or "missing" if the student is in class and did not complete the assignment. Late homework will be accepted with the highest possible grade of 50% of the original possible score. Late work will be accepted no later than a week after it has been assigned.

If you are absent from class, please come and see me for the missed work. **It is the responsibility of the student to take the initiative in making the arrangements to see teachers for make-up work.** I will supply you with the necessary material to help you catch up.

I am more than willing to give extra help before or after school.
** Please keep in mind that extra help is just that - EXTRA HELP - and therefore does not include reteaching of material missed due to poor classroom conduct or repeated absences. Before coming in for help, be sure to have all class notes, HW assignment,s and all questions that you have regarding the material.
** Do not seek me out for extra help before a quiz or test if you have not done the review.

Accommodations:

I am committed to creating a course that is inclusive in its design. If you encounter barriers, please let me know immediately so we can determine if there is a design adjustment that can be made. I am happy to consider creative solutions as long as they do not compromise the intent of the assessment or learning activity.

Attendance:

Students are expected to participate in class. Attendance is required in each course and will be logged daily in PowerSchool by the teacher. Live classroom sessions are mandatory for all students, except for absences as allowed by the school's attendance policy. Please have your parents communicate with the school if you will be absent. Please refer to the Student Handbook's attendance policy regarding absences. If a student is absent, it is their responsibility to check Google Classroom/email me for assignments. A "skip" during any graded work will result in a grade of "0".

Mission Statement:

The Wachusett Regional School District seeks to ensure meaningful student growth and promote social-emotional well-being in a safe and nurturing environment. We will integrate the talent, experience, and knowledge of all members of our community to develop lifelong learners, equipped to think critically in an ever-changing, global society.

Academic Integrity:

I generally have a zero-tolerance policy for cheating, and student(s) caught cheating will receive a "0" for the work. Students who collaborate with others in cheating, by allowing their papers to be copied or by other means, are subject to the same penalty. If you have any doubts or questions about what constitutes academic misconduct, please refer to the Student Handbook.

Zero Tolerance Policy:

There is a zero-tolerance policy for discrimination against race, gender, disability, and sexuality in this classroom. Any comments, even if intended as humor, will be forwarded to the student's administrator and dealt with according to the student handbook.

Syllabus Receipt Form:

Student's name (please print):_____

Course name: _____ Block:_____

The course syllabus provides the basic constitution of this math class. Ms. Thunberg expects all students to adhere to the expectations and classroom rules described and be aware of the grading policies and rubrics provided. Parents are encouraged to read this document and review it with their child to better support the student's progress in class.

Please provide your signatures to signify you have received the syllabus.
Only one parent/guardian must sign. Thank you.

Note: Your contact information should be accessible through Powerschool. If you have an alternate address you'd rather use, please email me at lindsey_thunberg@wrsd.net from that address so that I may save it to my contacts.

"I have received and read the Course Syllabus for Ms. Thunberg's math class."

Student's signature: _____ Date:_____

Parent's/Guardian's Signature: _____ Date:_____

Name (please print):_____

Parent's/Guardian's Signature: _____ Date:_____

Name (please print):_____