Course Description
As stated by College Board: “AP Calculus AB is roughly equivalent to a first semester college calculus course devoted to topics in differential and integral Calculus. … The course teaches students to approach calculus concepts and problems when they are represented graphically, numerically, analytically, and verbally, and to make connections amongst these representations. Students learn how to use technology to help solve problems, experiment, interpret results, and support conclusions.”

Course Prerequisites
As stated by College Board: “Before studying calculus, all students should complete four years of secondary mathematics designed for college-bound students: courses in which they study algebra, geometry, trigonometry, analytic geometry, and elementary functions. These functions include linear, polynomial, rational, exponential, logarithmic, trigonometric, inverse trigonometric, and piecewise-defined functions. In particular, before studying calculus, students must be familiar with the properties of functions, the algebra of functions, and the graphs of functions Students must also understand the language of functions (domain and range, odd and even, periodic, symmetry, zeros, intercepts, and so on) and know the values of the trigonometric functions at the numbers 0, π/6, π/4, π/3, π/2, and their multiples.

Course objectives
As stated by College Board: “Students who are enrolled in AP Calculus AB are expected to:”
- Work with functions represented in multiple ways: graphical, numerical, analytical, or verbal. They should understand the connections among these representations.
- Understand the meaning of the derivative in terms of a rate of change and local linear approximation and use derivatives to solve problems.
- Understand the meaning of the definite integral as a limit of Riemann sums and as the net accumulation of change and use integrals to solve problems.
- Understand the relationship between the derivative and the definite integral as expressed in both parts of the Fundamental Theorem of Calculus.
- Communicate mathematics and explain solutions to problems verbally and in writing.
- Model a written description of a physical situation with a function, a differential equation, or an integral.
- Use technology to solve problems, experiment, interpret results, and support conclusions.
- Determine the reasonableness of solutions, including sign, size, relative accuracy, and units of measurement.
- Develop an appreciation of calculus as a coherent body of knowledge and as a human accomplishment.

What is the late work policy and how often is homework collected?
- Late work (except MyMathLab) will be accepted up to one week late without penalty. Stay current on your work.
- Check the agenda and MyMathLab due dates. Out of respect, I ask that you do not work on your math homework in any class unless your teacher has given you permission.

Technology & Devices
You are EXPECTED to use technology appropriately. Cell phones need to be away unless stated otherwise, and please remove earbuds. Stay on-task, focused, and only apps/programs assigned in class.

The primary goals of Ms. Stevenson are to help you:
- Prepare for the AP Calculus AB Exam.
- Increase your efficiency and speed with answering questions.
- Think for yourself and feel confident doing so.
- Understand the choices you make have positive and/or negative consequences.
- Develop problem-solving skills for math, college and adult-life.
- Develop social skills by working with other students constructively.

What can I expect from Ms. Stevenson?
- Honesty – no “sugar coating”
- Help – assistance, but I won’t do it for you
- Mistakes – we’re all human and not perfect
- Confidentiality - your business is your own and nobody else's
- Listening - your concerns are valuable
- Responsibility - you are accountable for your actions, not me
- Patience - don’t make me use it for the wrong reasons
- High Expectations - I will “push you” academically and behaviorally

Materials
I expect you to have the following items:
- Spiral notebook for math only (4-5)
- Pencils & lead refills
- Eraser(s)
- Highlighter(s)
- Pens (dark colors)
- College ruled filler paper
- Graphing calculator
- Folder/binder to keep math work organized
- 3x5 index cards (~300) to make flash cards

AP Calculus AB Exam Structure
- Tuesday, May 14, 2018 at 8:00 am
- Total Exam time: 3 hours 15 minutes
- Section 1: Multiple choice, 45 Q, 1 hr 45 min, 50% of exam score
  - Part A: 30 questions; 60 minutes (no GC)
  - Part B: 15 questions; 45 minutes (GC ok)
- Section 2: Free Response, 6 Q, 1 hr 30 min, 50% of exam score
  - Part A: 2 problems; 30 minutes (GC ok)
  - Part B: 4 problems; 60 minutes (no GC)

What if I’m absent?
It is YOUR JOB to determine what you missed. The agenda is on my website. You have one day for everyday you’re absent (illness) to make-up work before it is considered late. Students who miss class for scheduled school activities (sports, ASB, performing arts, clubs, etc.) must meet the same assignment deadlines as other students.

Cheating
Cheating will not be tolerated. A student who cheats or a student who assists another to cheat will receive negative consequences. This follows the RMHS policy in the handbook. Consequences for all students who are knowingly involved are as follows:
1. Zero on assignment, parent contact, & warning.
2. Zero on assignment, parent contact, & detention.
3. Zero on assignment, parent contact, & referral

*Instructor may adjust class policies/procedures and % during the school year to meet the needs of students and pacing. *
Classroom Rules
- Respect your peers, the classroom environment, and me.
- Discuss the math, not the person.

Classroom Procedures
- Write down the agenda.
- Get out materials before class begins.
- Begin the warm-up upon entering room.
- Raise your hand to speak.
- Only leave your seat when it is appropriate to do so.
- Clean up the last minute of class.
- Push your chair in when dismissed.

What is expected of me academically?
This is an AP class. YOUR JOB is to be the best student you can by:
- Asking pertinent questions, participate, and give effort.
- Take notes and stay organized.
- Have a positive attitude and complete your own work.
- Come in to study hall if you need help.
- Come to class prepared EVERYDAY.

Mathematical Practices for AP Calculus
As stated by College Board: “These MPACs are highly interrelated tools that should be used frequently and in diverse contexts to support conceptual understanding of calculus.
1. Reasoning with definitions and theorems
2. Connecting concepts
3. Implementing algebraic/computational processes
4. Connecting multiple representations
5. Building notational fluency
6. Communicating

Overview for AP Calculus AB
I. Functions, Graphs, and Limits (Ch 2)
• Analysis of Graphs
• Limits of Functions (including one-sided limits)
• Asymptotic and Unbounded Behavior
• Continuity as a Property of Functions
II. Derivatives (Ch 3, 4, 5, 7, 9)
• Concept of the Derivative
• Derivative at a Point
• Derivative as a Function
• Second Derivatives
• Applications and Computation of Derivatives
III. Integrals (Ch 6, 7, 8)
• Interpretations and Properties of Definite Integrals
• Applications of Integrals
• Fundamental Theorem of Calculus
• Techniques and Applications of Anti-differentiation
• Numerical Approximations to Definite Integrals

Can I retake an assessment?*
Yes. You are allowed one retake for each assessment except the final exam. In order to be eligible to retake an assessment, you must complete the optional homework and other optional assignments for the lessons specific to the assessment. The highest score earned will be counted. Retakes will be scheduled throughout the school year so plan accordingly.

AP CALCULUS AB SYLLABUS
School Year 2018 - 2019

<table>
<thead>
<tr>
<th>INSTRUCTOR</th>
<th>EMAIL</th>
<th>WEBSITE</th>
<th>STUDY HALL</th>
<th>ROOM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ms. Marie Stevenson</td>
<td><a href="mailto:mstevenson@psusd.us">mstevenson@psusd.us</a></td>
<td><a href="http://www.msstevensonmath.com">www.msstevensonmath.com</a></td>
<td>Lunch and/or afterschool.</td>
<td>603</td>
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</table>

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How will I be graded?*
• The gradebook will be broken down by Enduring Understandings (EU) as outline by college board. The % is based on the approximate amount of time spent on them in class. Each assignment completed in class will be attached to at least one of the grading categories listed below.

• Semester 1
  o EU 1.1 – Concept of limits (10%)
  o EU 1.2 – Continuity (10%)
  o EU 2.1 – Definition of Derivative & calculate derivatives (35%)
  o EU 2.2 – Using derivative to understand functions (10%)
  o EU 2.3 – Applications of Derivatives (25%)
  o EU 2.4 – Mean Value Theorem (5%)
  o Miscellaneous Topics – (5%)

• Semester 2
  o EU 3.1 – Antidifferentiation (5%)
  o EU 3.2 – Definite Integrals and Reimann Sums (15%)
  o EU 3.3 – The Fundamental Theorem of Calculus (20%)
  o EU 3.4 – Definite Integral Applications (30%)
  o EU 3.5 – Separable Differentiable Equations (10%)
  o EU 1.1 – Concept of limits (5%)
  o EU 1.2 – Continuity (5%)
  o EU 2.3 – Applications of Derivatives (5%)
  o Miscellaneous Topics (5%)

I do not round grades!
• Assessments are graded for accuracy and will be scored using the following scale. The ranges for each assessment will be generated by the “% correct” breakdown and will vary for each assessment.

<table>
<thead>
<tr>
<th>Synergy score /100</th>
<th>~% correct</th>
<th>AP Score Recommendation</th>
<th>College course grade equivalent</th>
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<tbody>
<tr>
<td>100</td>
<td>90</td>
<td>Extremely well-qualified</td>
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<tr>
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<tr>
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<td>0</td>
<td>No attempt</td>
<td>n/a</td>
</tr>
</tbody>
</table>

• Assessments are composed of multiple choice and free-response AP Exam questions and/or AP Exam type questions. An assessment will occur every 1-2 lessons and will cover current and previous EUs.
• Online homework is graded for accuracy.
• Textbook homework will be graded for accuracy based on questions Ms. Stevenson selects from the entire assignment.
• Handouts are worked on in class and at home, then graded in class and given a completion grade. Sloppy work will not be tolerated.
• Class work is graded as a completion grade.
• Projects will be graded based on the rubric given.
• Final exam: Everyone will take the Semester 1 Final exam. Students who take the AP exam will be exempt from taking the Semester 2 final exam.
• Your grade reflects your level of understanding of each Enduring Understanding (EU) covered each semester. Hard work, asking questions, and persistence are key to success in this class.

*Instructor may adjust class policies/procedures and % during the school year to meet the needs of students and pacing. *