Spaulding High School

Course Title: AP Calculus AB
Department: Mathematics
Teacher Contact Information: Ms. Erin Carter, (802) 476-4811 x 1192 or ecartshs@buusd.org
Department Chair Contact Information: See above.

Course Description:
Welcome to Calculus AB. This full-year A.P. course is equivalent to one semester of college calculus. In many ways, this course will be taught as a college course; it is intended for capable students who are motivated and self-disciplined who will do all their assigned practice on time each night. The content and the pace may be both challenging and difficult at times, but we will do our best to make it bearable and hopefully even enjoyable.
The content of Calculus AB is defined by the Advanced Placement Program, and is reflected in the A.P. exam. The curriculum develops and changes with time. Our main content topics will be Limits and Continuity, Concepts and Applications of Derivatives, Infinite Series, and Concepts and Applications of Integrals. How these topics are addressed is what has changed in the recent past. The recent focus has been on the understanding of these topics so that they can be applied and extended to a variety of situations; and a de-emphasis on the dependence on graphing calculators. For the May 2022 A.P. exam more than 50% of the test will not allow the use of a calculator. We must be prepared for this!

Our textbook this year will be CALCULUS, Concepts and Applications by Paul Foerster. We have had great success using this text. We will use his textbook but will supplement with other materials and texts which I have used in the past. We will cover chapters 1-8 and 10 in Foerster text as we prepare for the A.P. exam in May.

Materials/Text(s):
- Textbook provided (note that if you lose or damage this text the replacement fee is $45)
- Composition book for notes, provided
- TI-83+ graphing calculator or better
- 3-ring binder with lined and graph paper
- Ruler
- Pencil for doing all assigned work and pen for correcting.

Practice:
Nightly homework will be assigned. Practice must be completed for students to have opportunity for reassessment.

Assessment/Reassessment:

Assessments will consist of tests, quizzes, and AP Classroom assignments. AP Classroom assignments will not be accepted late. They are due at the beginning of the class period.Tests and quizzes will be timed and must be completed the day they are assigned

unless you are absent, in which case they must be completed within 48 hours of your return.
Students will be able to reassess on tests only provided they meet the following criteria:

-All homework is done for the unit. Homeworks that were completed on time meet this criteria if they were at least proficient. Homeworks not on time or developing or below must have every problem done once late.

-Test corrections are completed and correct.

- Student shows that all their notes are in their composition book.

Students will then schedule a retake approximately two school days after these items are complete, during advisory.

Classroom Expectations:

- Cell phone policy: students are expected to turn their cell phone in at the beginning of each class period to the cell phone holder. While we are partially remote any visible cell phone will result in a write-up, every time, without exception.
- Headphones, earbuds, ipods, and other music devices are not permitted at any time.
- Chromebooks are only to be used when instructed to do so by the teacher for class purposes.
- If you are absent, it is expected that you will find a classmate or the teacher to figure out what you have missed. You are responsible for missed content and should find a classmate to copy any missed notes. If you miss a quiz or a test, it is your responsibility to make arrangements to make it up within 48 hours.
- When we are in person, you will be assigned a group or partner during class, which will change each unit. You are expected to work with your group as instructed. You may not opt to work alone or with another group.
- Per school rules, please do not leave your personal items unattended in Room 100, including backpacks. You may not drop these off and leave them unattended.
- If you are tardy expect that I will write you up. Tardy is defined by you not being in your seat when the bell rings.
- **Students who do not do all assigned practice on time each night should expect that they will not be allowed to continue in this class.**

CHEATING: Cheating will not be tolerated in this course. This includes people who share completed work with others.Spaulding High School has an academic honesty policy, which I expect everyone in this course to follow. In this course, cheating includes copying of assignments and Wednesday Sheets as well as cheating on quizzes and tests. If you cannot, when work is returned, do by yourself problems that seem copied, then I will assume you cheated. This does not mean that you cannot work with others, but in the process you must learn how to do the work.**Cheating will be written up each time, and consequences may include inability to get an exemplary, no honors weight on the course, and failure of the course.**

Extra Help:

Students will be permitted to sign up to come in for advisory on the board in the room. No more than four students will be permitted each block. If more than four students need help, the teacher will determine which students will attend advisory. For students who do not have band and chorus, the room will be open at 7:35 for help purposes when I do not have a meeting.

I have read and understand the attached syllabus. I know how to contact the teacher and/or access the syllabus in the future should questions arise.

Student's Name: (please print) _____

Student's Signature: _____ Date: _____

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

AP Calculus AB Standards

A. Functions, Graphs and Limits

1. Understand whether a function has a limit and identify the limit if it does.
2. Calculating Limits using limit properties
3. Estimating limits from graphs and tables
4. Describing asymptotic behavior using infinite limits
5. Understand how to prove if a function is continuous
6. Understand and apply Intermediate Value Theorem
7. Use L'Hospital's rule

Indicators 1-5 are P indicators, 6 and 7 are E.

B. **Derivatives**

1. Be able to estimate a derivative graphically and numerically.
2. Derivative as defined as the limit of a difference quotient (H goes to zero and x goes to c proofs)
3. Create Tangent lines
4. Characteristics of graphs of F, f, and f'
5. Mean Value theorem
6. Equations involving derivatives including: Quotient Rule, Chain Rule, Product Rule, trig and inverse trig derivatives, power rule, natural logs, exponential functions, etc.
7. Implicit differentiation
8. Slope fields

Indicators 1-6 are P indicators, 7 and 8 are E.

C. Indefinite Integrals

1. U-Substitution
2. Basic anti-derivative equations (power rule, trig functions, etc.)
3. Separable differential equations

Indicators 1-2 are P indicators, 3 is E.

D. Definite Integrals

1. Estimates with trapezoidal rule, Riemann Sum, etc.
2. Fundamental Theorem of Calculus
3. Use of initial conditions to find particular anti-derivatives

4. Areas and volumes of shapes with disks and washers

Indicators 1-3 are P indicators, 4 is E.

E. Modeling with Calculus

1. Related Rates
2. Relationship between displacement, distance, velocity, and acceleration.
3. Differential Equations

Indicators 1, 2 are P indicators. 3 is E.