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AP Calculus introduces limits and the processes of Differentiation and Integration and provides numerous real-world examples of their uses. Success in this course requires hard work and dedication. I strongly recommend you to form study groups with your classmates. If you ever have questions, including homework questions and conceptual questions, **do not hesitate to ask me!**

Textbook: Finney, Ross L. *Calculus: Graphical, Numerical, Algebraic*. AP Edition. Boston: Prentice Hall, 2012.

Standards-Based Grading

I will be using Standards-Based Grading into this course. There are several reasons for this research-based¹ grading method, including:

- The qualitative differences between the grades A, B, C, D, and F are clarified for students and parents, reducing questions and confusion about grades
- More data is provided to me about student learning, allowing me to adjust instruction based on student learning
- Students focus shifts from grades to learning by providing students multiple opportunities to demonstrate proficiency in the standards
- Student grades are calculated based on final student proficiency, not an average of all grades earned during the quarter
- Student grades become much more consistent by reducing subjectivity and clarifying student objectives for learning
- Students are encouraged to develop a high level of critical-thinking skills, preparing them well for life after high school

Students will earn a score of from 0.0 – 4.0 for each objective in the course on an assessment¹. Students will have one in-class assessment on each objective and will be allowed re-assessments only when showing proof of completed practice. Students must initiate each re-assessment. *MOODLE* online software will be used for all assessments in class. Remediation will be done on paper and must be completed satisfactorily for the reassessment grade to count.

The student's **highest score** on every standard will be recorded for grading purposes.

Scale	Description
4.0	Student can demonstrate a complete understanding of all topics related to the standard. Student can also apply knowledge of the standard to situations not specifically described in class without any assistance.
3.0	Student can demonstrate a complete understanding of all topics related to the standard without any assistance.
2.0	With help student can demonstrate complete understanding of standard or student demonstrates partial understanding of standard without any help
1.0	With help student can demonstrate partial understanding of standard
0.0	Even with help, student cannot demonstrate any understanding of standard

Half-steps (3.5, 2.5, 1.5, 0.5) are earned for non-conceptual errors (algebra mistakes, calculator mistakes, etc.)

¹ Marzano, Robert J. *Formative Assessment & Standards-based Grading*. Bloomington, IN: Marzano Research Laboratory, 2010. Print.



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Letter grades will still be assigned in this course each quarter, with the semester grades resulting in awarding of credit and remaining on the student's transcript. **Standards-Based Grading of Content Objectives will be worth 50% of the overall grade.** The following qualitative definitions of grades will be used in this course, and are based on Marzano's research:

Letter Grade	Standard Average	Letter Grade	Standard Average
A+	4.0	C	2.50 - 2.64
A	3.60 - 3.99	C-	2.40 - 2.49
A-	3.40 - 3.59	D+	2.30 - 2.39
B+	3.20 - 3.39	D	2.15 - 2.29
B	3.00 - 3.19	D-	2.00 - 2.14
B-	2.80 - 2.99	F	0 - 1.99
C+	2.65 - 2.79		

Grades will be calculated using the following weights:

Standards-Based Content Objectives	50%
Standards-Based Laboratory Objectives/Activities	20%
Summative Assessments	15%
Midterm/Final Exam	15%

Summative Assessments and Midterm/Final Exams will be standards-based and completed in class. Summative Assessments will allow for one retake per standard to be initiated by the student.

Letter grades will be assigned according to the percentages listed above.

Feel free to contact me if you have questions. E-mail is preferred.

Teacher: Mr. Hamm
School Phone: 715-643-3647 x432

E-mail: andyha@boyceville.k12.wi.us
Website: <http://www.boycevillescience.com>

Mr. Hamm is available for student questions and assistance before school by appointment from 7:30 - 8:05 as well as during his advertised preparation period. Appointments are needed because this is also the time where Mr. Hamm will be preparing for classes, including making copies and creating other instructional materials, meeting administrative requirements, contacting parents, and examining new technologies and classroom materials. Daily intervention time is also an opportunity for student assistance. Mr. Hamm is rarely available after school due to other commitments.

Attendance Expectations

Regular attendance is **very important** to success in this course. Please do your best to attend class every day. If you cannot attend class, please get any notes missed from a friend or the class website and copy them into your notebook as soon as possible. **Students must be seated in their seats and ready to learn when the bell rings or they will be marked tardy** and will be disciplined starting at step one and increasing steps for every subsequent unexcused tardy.

Students that miss an assessment due to an excused absence must make the assessment up on their own time within two days of returning to class. Failure to make up the assessment will result in a loss of the first opportunity to demonstrate



mastery of the objectives and will result in the student needing to complete the practice assignments and complete a re-assessment.

Classroom Behavior Expectations

- Respect everyone, including the teacher, other teachers, staff, administrators, other students, and yourself *at all times*.
- Put forth your best effort *at all times*.
- Ask questions if you are confused, need something clarified, or seek help...I am here to help!

Specific Classroom Rules

- Raise your hand to talk and respect others while they talk, including the teacher.
- This class is not your nap time. Please refrain from sleeping *at all times*.
- Cheating is **not tolerated under any circumstances** and will result in an automatic zero and referral under the district/school policy. Talking is **not allowed** during assessments.
- Please come to class prepared to learn *every day*. This includes bringing a pencil, a notebook, your textbook, your folder/binder, and any completed practice. ***You will not be allowed to go to your locker if you forget anything.***
- Students on the weekly detention list are not allowed to leave the classroom.
- Stay on task! If you are given time to work on practice, then work on practice. If you should be taking notes, then take notes. If you have a question, ask Mr. Hamm! Come to class on time. You must be seated in your seat ready to learn when the bell rings or you will be marked tardy. Unexcused tardiness will not be tolerated.
- The tools available in the classroom are for everyone's use. Please do not remove anything from the classroom without Mr. Hamm's permission.
- Keep your area clean. You are asked to clean your area at the end of the period and make sure that it is at least as clean as it was when you arrived.
- Keep your cell phone out of the room or packed away. I don't want to see it!
- Be respectful to substitute instructors. Any students who cause problems for a substitute teacher will automatically escalate to step 2.

Classroom Consequences

Step 1: You will serve 30 minutes with Mr. Hamm before school. You will lose all pass privileges for the remainder of the quarter and must remain in the classroom for the entire period.

Step 2: You will serve 60 minutes of detention with Mr. Hamm before school. Additionally, your parents will be contacted regarding your behavior. Failure to serve your time results in an escalation to Step 3.

Step 3. You will be required to attend a parent/student/teacher conference to discuss your behavior and the options available to you to improve your behavior. This conference will be set up after your parents have been contacted and will be completed as soon as possible. A Behavior Improvement Plan will be designed during this conference. Failure to adhere to the plan will result in an escalation to Step 4



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Step 4. You will be referred to the appropriate administrator and your parents will be contacted and informed that you have violated the plan. Significant violations will immediately escalate to step 4. All further disciplinary action will be handled by the appropriate administrator and the instructor.

Positive behavior will be rewarded in a variety of ways, which will be communicated to students each quarter. Students with no disciplinary actions in class each quarter will be eligible for the positive behavior rewards. Disciplinary actions in regards to positive behavior will be reset every quarter.

Electronic Device Expectations

Possession and/or use of a cell phone is not required or needed to complete the math curriculum at Boyceville High School. Students are expected to keep their phones and other small personal electronic devices in their locker unless prior approval is obtained from the instructor and all electronic devices must be registered according to school policy. Any student in violation of this policy will have their phone taken away and the student handbook guidelines will be applied.

Laptops, IPADs, and other tablets or similar (non-small) electronic devices may be used throughout the year in class. Any student wishing to use personal electronic devices must have the approval of the instructor before they will be allowed to be used in class and these devices must be registered according to school policy.

Resource Expectations

The following materials will be needed for this course:

- One two-inch binder or larger for handouts and assignments
- One 70-page spiral notebook for note-taking
- White loose-leaf paper for assignments
- A scientific calculator though a graphing calculator (TI-83 or similar) is highly recommended
- Several pens for writing laboratory reports
- Several pencils for completing assessments, taking notes, and completing practice assignments.

General Course Timeline Expectations

The content and laboratory practice standards for this course are listed on the coming pages. Below is a tentative timeline for standards per quarter

Quarter 1: Standard 1.1 through Standard 2.4c

Quarter 2: Standard 3.1a through Standard 5.3c

Quarter 3: Standard 5.5a through Standard 7.4c

Quarter 4: Standard 8.1a through Standard 8.3b



AP Calculus Standards

1.1	Coordinate Increments and the Equation of a Line
1.2a	Using the vertical line test and finding the domain and range of functions
1.2b	Working with even and odd functions
1.2c	Graphing piecewise-defined functions
1.2d	Working with composite functions
1.3a	Graphing exponential functions and finding their domain and range
1.3b	Rewriting exponential functions with different bases and finding zeroes
1.4	Graphing parameterized functions and writing parameterizations for curves
1.5a	Find the inverse of a function
1.5b	Solve exponential and logarithmic equations
1.5c	Determine the domain and range of logarithmic functions
1.6a	Working with radian measure and trigonometric values of angles
1.6b	Determine whether trigonometric functions are even or odd
1.6c	Graphing and interpreting graphs of trigonometric functions
1.6d	Evaluate expressions involving trigonometric functions and solve trigonometric equations
2.1a	Finding average and instantaneous speeds
2.1b	Apply the properties of limits
2.1c	Determine limits by substitution, tables, or graphs
2.1d	Finding one-sided limits
2.2a	Finding limits involving infinity
2.2b	Finding vertical and horizontal asymptotes of functions
2.2c	Finding power function end behavior models for functions, and identify any horizontal asymptotes
2.3	Determine where functions are continuous and find/classify points of discontinuity
2.4a	Find average rates of change of functions over intervals
2.4b	Find equations of tangent and normal lines
2.4c	Find instantaneous rates of change
3.1a	Find derivatives of functions at indicated points
3.1b	Match graphs of functions with graphs of derivatives
3.2a	Determine where functions are continuous and/or differentiable
3.2b	Determine whether functions have corners, cusps, vertical tangents, or discontinuities
3.2c	Find numerical derivatives of functions at indicated points
3.3a	Find derivatives using the product and quotient rules
3.3b	Find horizontal tangents of curves with product and quotient rules
3.3c	Find the first four derivatives of functions
3.4	Find rates of change related to velocity, including estimating from a graph
3.5a	Find derivatives of trigonometric functions



3.5b	Find velocity, speed, acceleration, and jerk of a function
4.1a	Use given substitutions and the Chain Rule to find derivatives
4.1b	Evaluate derivatives of composite functions at given values
4.1c	Find equations of lines tangent to curves using the chain rule
4.2a	Find derivatives using implicit differentiation
4.2b	Find slopes of curves using implicit differentiation
4.2c	Find equations of lines that are tangent or are normal to curves at given points using implicit differentiation
4.3a	Find derivatives of inverse trigonometric functions
4.3b	Find equations for tangent lines at indicated points of inverse trigonometric functions
4.4a	Find the derivative of exponential and logarithmic functions
4.4b	Find equations for tangent lines at indicated points for exponential and logarithmic functions
5.1	Find the extreme values of functions and where they occur using critical points
5.2a	Find the values that satisfy the hypotheses of the Mean Value Theorem
5.2b	Find all possible functions with a given derivative
5.3a	Determine local extrema, identify any absolute extrema, or find points of inflection of a function
5.3b	Determine the interval on which the graph of a function is concave up or concave down
5.3c	Use the graph of f' to estimate the intervals on which a function is increasing or decreasing
5.5a	Find linearizations of functions at given values
5.5b	Use linearizations to approximate expressions
5.5c	Find differentials
5.5d	Use Newton's Method to estimate solutions
5.6	Solve related rates application problems
6.1a	Find the exact area under a curve using finite sums
6.1b	Use the rectangular approximation method to approximate areas under a curve
6.2a	Express limits or desired quantities as definite integrals
6.2b	Evaluate the integral of constant functions
6.2c	Use graphs of integrands and areas to evaluate integrals
6.2d	Evaluate the integral of a function using technology
6.3a	Evaluate integrals
6.3b	Find average values of functions
6.4a	Find derivatives of integrals
6.4b	Construct functions that satisfy given conditions
6.4c	Evaluate definite integrals using the Fundamental Theorem of Calculus
6.5	Use the Trapezoidal Rule to approximate values of integrals
7.1a	Find general solutions to exact differential equations
7.1b	Solve initial value problems explicitly
7.1c	Match differential equations with the appropriate graphs
7.1d	Use Euler's method to approximate the value of y



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7.2a	Find indefinite integrals
7.2b	Use substitution to evaluate definite and indefinite integrals
7.3a	Use integration by parts to evaluate definite and indefinite integrals
7.3b	Use tabular integration to evaluate indefinite integrals
7.4a	Solve initial value problems related to exponential growth and decay
7.4b	Solve problems where interest is compounded continuously
7.4c	Find exponential functions whose graphs pass through two points
8.1a	Solve particle motion and projectile motion problems
8.1b	Solve application problems related to the integral as net change
8.2	Find the areas of regions in the plane
8.3	Find the volumes of solids



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AP Calculus AB Syllabus

2018-2019

Please complete, detach, and return this portion of the Course Syllabus to Mr. Hamm

I have read the Course Syllabus and pledge to give my best effort.

Student Printed Name

Student Signature

Date

I have read the Course Syllabus and will contact Mr. Hamm if I have any questions.

Parent/Guardian Printed Name

Parent/Guardian Signature

Date