

Syllabus – Differential Calculus/AP Calculus

South Florence High School

INSTRUCTOR:

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COURSE DATES:

August 1 – December 16: Differential Calculus

January 3 – May 26: AP Calculus

COURSE DESCRIPTION:

In this course, students will investigate each concept numerically, graphically, analytically, and verbally. They will be encouraged to explore all possibilities and ask, “Why?” when something doesn’t make sense or when they want to extend their thinking. Students will not only be encouraged to master the mechanics and computational side of calculus, but they will also be asked to know how to apply derivatives and integrals to real-life problems. My goal is for every student to understand and appreciate the need for calculus in our ever-changing world.

Students are required to discuss problems both in a whole class setting and small groups. In some class activities, students are required to give written conclusions as a result of an exploration. Students will be given opportunities to correct their tests/quizzes and explain their mistakes in written form.

Students must justify conclusions of their mathematical work both orally and in writing. On the free response portion of the AB Calculus Exam, students are asked to “justify your answer” or “explain your reasoning.” Students must have the opportunity to do this during this course.

Every student has unique needs as a learner. Therefore, we will explore concepts in a variety of ways. I will sometimes work problems as students take notes. Students will work in pairs or groups on several problems and present those problems in both written and oral forms to the class. Students will also use technology to explore and investigate mathematical concepts.

We will use both a textbook and digital resources to learn the content for this course. The textbook is [Calculus for AP®, 1st Edition](#); students will have access to this book online in addition to getting a hard copy. Please see google classroom for directions on how to access the online textbook.

COURSE OBJECTIVES:

A document outlining the Advanced Placement objectives and standards for Calculus can be found [here](#). Listed below is an abbreviated version of the objectives found in the AP document.

- Use the technology to learn about Calculus through pre-made activities and graphical explorations
- Review and perfect their understanding of basic functions and their properties.
- Understand the concept of a limit and be able to evaluate limits.
- Understand the derivative as it is defined by a limit and be able to determine the derivative of a function using limits and derivative rules.
- Be able to apply the derivative to solve problems.
- Understand the concept of a definite integral as defined by the area under a curve
- Be able to evaluate integrals both graphically and algebraically
- Draw slope fields and solve separable differential equations
- Find the area between two curves and the volume of a solid of revolution
- BC: Understand how to use series to model polynomial functions.
- BC: Determine the convergence or divergence of an infinite series.

ATTENDANCE:

As per [Florence School District One policy](#), students are allowed to miss five days with an excuse and five days without an excuse.

In order to be successful in this class, regular attendance is a necessity. If you must be absent, it will be your responsibility to get missed notes and make a plan to complete missing assignments.

CLASS MAKE-UP POLICY:

You are allowed 5 days from the day you return to school to make up any work missed while absent. After 5 days, you will receive a zero on any assignment that you have not completed. As long as you come to me and arrange a time in the near future to make up your work within 5 days of being out, the zero will be replaced with your make-up grade. Please keep up with what is going on in class while you are out. I may not let you know that you've missed a test or quiz – you have to come to me to get that information. I do keep a running list on my board of students with missing work. Check that list periodically to make sure you are up-to-date on tests/quizzes. I reserve the right to deduct points from your score if you do not follow this policy.

LATE WORK POLICY:

- In the event that an assignment is not submitted by the due date, all teachers, per district policy, will issue a 0 as a placeholder until the work has been submitted.
- Students will receive a 10% deduction per day for the first five days after the due date. (For example: The assignment is turned in 5 days late. The earned academic grade is 80. The grade will be recorded in the gradebook as 40. Work that is late past the 5-day mark will not be accepted.)
- After the answers to **the assignment have been reviewed in class or posted in Google Classroom**, the student can earn only a maximum grade of 50% regardless of when the assignment is submitted within the 5-day late period.
- Students must email the teacher indicating the title of the late assignment in the subject line. Failure to notify the teacher of the submitted work will result in the zero remaining in the gradebook.
- Students who choose not to turn in the work will receive a grade of zero.

This is a universal policy for all SFHS mathematics courses.

Students who fall under the Department of Justice (Exception Children, Multiple Languages, or McKinney Vento etc....) are not subject to this policy as they have plans specifically written for their needs.

Per FSD1 policy: excused absences, extenuating circumstances, and SFHS administrative approval may alter or change this policy on a case by case basis.

COMMUNITY STANDARD OF CONDUCT POLICY:

Students are expected to exercise behavior that is respectful to self, others and property and to conduct themselves in a manner compatible with South Florence's mission as an educational institution. Students are responsible for knowing and understanding all South Florence policies, rules and regulations and for upholding these community standards of conduct. The policies can be found on the [FIS website](#).

COURSE OUTLINE:

These dates are estimates, so keep in mind that this is subject to change. However, these dates are a guideline for us to use as we work to cover all the material necessary to be successful on the AP exam.

Differential Calculus

August 1	Intro to Calculus	1 day
August 2 - August 16	Unit 1: Limits and Continuity	11 days
August 17 - August 31	Unit 2: Derivatives - Definition and Basic Rules	11 days
September 1 - September 14	Unit 3: Derivatives - Composite, Implicit, and Inverse	9 days
September 15 – September 30	Unit 4: Motion, Related Rates, Approximations, L'Hopital	12 days
Intercession: October 3 - 7		
October 10 - October 28	Unit 5: Derivatives and graphing, Optimization, analytical implicit relations	15 days

October 31 – November 17	Unit 6a: Approximating Integrals, Riemann sums, Fundamental Theorem, Properties of Definite Integrals, basic indefinite integrals	13 days
November 18 – December 9	Unit 6b: Substitution and other integration techniques (includes BC: Integration by Parts, Partial Fractions, Improper Integrals)	13 days
December 12 - 16	Review and Final exam	5 days

AP Calculus AB

January 3 – January 13	Review Units 1-6 / AP-style prep	9 days
January 17 – February 16	Unit 7: Differential Equations	23 days
Intercession: February 20 - 24		
February 27 – March 30	Unit 8: Applications of Integration (Area/Volume)	23 days
March 31 – April 6	Review for the AP exam	5 days
Spring Break: April 7 – April 14		
April 17 – May 5	Review for the AP exam; Practice exam (April 21)	15 days
Monday, May 8	TAKE THE AP CALCULUS EXAM	1 day
May 9 – May 26	Work on Calculus projects for our final exams	14 days

AP Calculus BC

January 3 – January 24	Unit 7: Differential Equations	15 days
January 25 – February 16	Unit 8: Applications of Integration (Area/Volume)	17 days
Intercession: February 20 - 24		
February 27 – March 13	Unit 9: Parametric Equations, Vector-valued functions, and Polar Coordinates	11 days
March 14 – April 6	Unit 10: Infinite Sequences and Series	17 days
Spring Break: April 7 – April 14		
April 17 – May 5	Review for the AP exam; Practice exam (April 21)	15 days
Monday, May 8	TAKE THE AP CALCULUS EXAM	1 day
May 9 – May 26	Work on Calculus projects for our final exams	17 days

GRADING POLICY:

Quarter 1/3		Quarter 2/4		Grading Scale
Tests/Projects	40%	Tests/Projects	45%	
Quizzes	30%	Quizzes	30%	80-89..... B
Classwork/ Homework	20%	Classwork/ Homework	25%	70-79..... C
Midterm exam (take home)	10%			60-69..... D
				0-59..... F
Final Semester 1 grade is 40% quarter 1, 40% quarter 2, and 20% final exam.				**All information is subject to change per district decisions

**Within each of the categories listed above, each assignment will be worth various amounts of points based on the type and importance of the assignment to the unit studied. This means some classwork assignments might affect your grade more than others based on the amount of points I designate to each assignment.

HOMEWORK POLICY:

Homework will be given each day new material is covered in order to encourage students to practice and self-assess their understanding. Some homework assignments will be due the next day while others may take longer. Most homework assignments will be assigned from the textbook, but I will give some online practice as well.

Homework from the textbook will be checked for completion and effort; students may earn 100%, 50% or 0%. I will never grade this type of homework for accuracy as that is not the goal for textbook assignments. Homework assignments given through DeltaMath will be graded for accuracy because students have the opportunity to try the problem more than once, see help videos, and look at examples.

EXAM POLICY:

Differential Calculus: Students will take a midterm exam in October and a cumulative final exam at the end of the course. Students may exempt the final exam if their cumulative average (quarters 1 and 2) is 90 or above and the student has no out of school suspensions for the semester.

AP Calculus: Students will take a midterm exam at the end of the 3rd quarter. The midterm will count as 10% of the 3rd quarter grade.

AP Calculus AB/BC students will take the national AP Calculus exam on May 8th, 2023. It will not count towards their grade, but it will determine whether or not they receive college credit for the course. They will NOT take an additional final exam for the course, so the semester grade will be the average of their quarter 3 and quarter 4 grades.

CALCULATOR POLICY:

Students will be issued a graphing calculator for use in the classroom and will be responsible for damages made to the calculator while in his/her possession. Damages may include, but are not limited to, the removal of batteries or any parts of the calculator and any permanent markings made on the case or on the calculator. Damages will be assessed and the student will be responsible for paying any fines. Additionally, the student will be disciplined according to the disciplinary code of FIS. The student will use the SFHS calculator only for problems the instructor assigns. The student cannot play games or write notes on calculators or on his/her own calculator during the class period. The student cannot add any programs to the school issued calculator or to his/her own calculator during class time, unless given permission by the instructor to do so.

Calculus students may choose to check out an older model of the TI-Nspire CAS from me for home use. Just like chromebooks, this is a borrowed piece of equipment. You are responsible for any damages made to the calculator while in your possession and will be expected to pay fines based on the damage.

STUDENT RESPONSIBILITIES:

- Students are responsible for checking google Classroom each day for updates to assignments, due dates, and other important class information.

- Students must take the initiative to ask for help when they do not understand.
- Students must contact the teacher when they have a concern or issue with a grade listed in PowerSchool.
- Students must come to class with a charged Chromebook.
- Students must have all necessary materials with them in class each day.
- Students must get notes online when they miss a class. They are responsible for getting any missed information when they are absent.

PROCEDURES:

- Entering class: When you enter class, get all materials (pencils, notebooks, calculators, etc.) ready to use before class starts and begin working on Bruin Bellwork.
- Using a classroom calculator: You will be assigned a calculator that can be used all year. You are responsible for making sure your calculator gets put away correctly after use. You are also responsible for any damages to that calculator during your use.
- Disruptive Behavior: If your behavior disrupts the learning process, here are the steps of action: 1) Warning 2) Parent phone call 3) Parent letter 4) Parent conference 5) Referral
- Going to the restroom: Unless it's an emergency, you may only use the restroom during our designated potty break time for our hallway. This will be posted on the board in class.

MATERIALS NEEDED:

- Pencils – no pens necessary
- One 3-ring binder per semester for notes/homework (size should be at least 1-inch)
- Plenty of loose-leaf paper
- markers and highlighters (optional)
- Graph paper - Post-it makes graph paper sticky notes that are really cool!
- Graphing calculator – If you do not have one, you may use my class set of calculators, but they cannot be taken home. I will give you online graphing calculator resources that you may use for homework. You do have the option of checking out one of my older calculators to take home, but the amount is limited.
- 3-4 Binder dividers to organize your notebook

Parents,

Thank you for partnering with me to ensure your child has a successful year! Here are some helpful tips to keep you up-to-date:

- ❖ The best way to know what your child needs to do for my class is to have them log into their Google Classroom with you. You can have your child show you all posted assignments and due dates there.
- ❖ Resources such as the syllabus, class notes, videos, and links to digital resources can also be found in your child's Google Classroom.
- ❖ You can access lesson plans, assignment due dates, and test/quiz dates from [my school webpage](#). Just go to the South Florence website and click: Teachers >> Lindsey Bibler >> Assignments.
- ❖ You can email me at lindsey.bibler@fsd1.org with any questions or concerns you may have. If you prefer to speak to me on the phone, you can call my classroom at (843) 954-3272 and leave a voicemail. I can return your call between the hours of 12-2 and strive to return calls within 1-2 business days.

Please check the following boxes to indicate you have reviewed all important information about this course.

- My child logged into his/her google classroom and we read the syllabus together.
- I completed the google form entitled "Parent Information Form". (This can be found as an assignment in your child's Google Classroom)
- I read and understand the South Florence late work policy (in syllabus).
- I read and understand the calculator policy (in syllabus).

Parent Signature: _____

Student Signature: _____