

MAST @ FIU

Honors Calculus Contract

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### **Course Overview**

The Honors Calculus course concentrates on the achievement of the calculus topics as outlined by the College Board, but includes additional topics as time permits. Students enrolled in this course receive a strong foundation in the basics of differential and integral calculus. Every student enrolled in the course has a graphing calculator of his/her own or one issued by the school, and is able to use the calculator both in class and outside of class. Classes meet approximately 180 times per school year. Classes meet every day for sixty minutes at a time. The graphing calculator is incorporated in the instruction of most topics throughout the course. Students are required to present their solutions both orally, written and visually, demonstrating a graphical as well as an analytical approach. The assignments, lesson plans and content videos will be on the website.

### **Graphing Calculators Utilized:**

TI83-TI89's and others from College Board approved list. The TI-83 presenter is used in the classroom for demonstrations of calculator activities. The graphing calculator will be used as a tool to solve problems and illuminate concepts visually. The TI83-TI89's will be used first to graph functions then to take the derivative and integrations of those functions. The TI83-TI89's will be used to confirm solutions of solved problems, solve created equations, or create solutions to complex derivatives or integrations.

### **Writing Assignments:**

Concepts will be solidified by the use of descriptive writing. Problems will be solved and then a detailed written description of the concepts and mathematics behind the solutions will be required. These writings will be used as both a teaching and reviewing tool. As new concepts are introduced previous detailed writings will be used as a resource to develop an understanding of new, and to reinforce past, concepts.

### **Attendance:**

Students are strongly discouraged from being late or missing class. Students learn to explore and discover mathematical concepts in class. If a student is absent it will interfere with their ability to understand the concepts that are necessary for course completion. Make up tests are given after school within three days of permissible absence. When students are absent they are expected to visit the website, watch the videos if necessary, and complete the given Homework/ Classwork assignment.

**Conduct:**

All students are expected to attend class on time, bring materials, and participate. Students will need to treat others with respect and understanding. Unexcused absences, tardiness, and cheating will receive an F for the day. No activity that interferes with the learning process will be tolerated. Use of cell phones for non-academic purposes in the classroom will not be tolerated. If a student is found using a cell phone for non-academic purposes it will be confiscated.

**Experiment:**

There will be an end of the year project in the form of an experiment. Students will design an experiment that would measure some aspect of the rate of change in any event in nature. You must provide a written design and a mathematical design for the expected outcome. The student will then conduct the experiment and explore the previous mathematical outline.

Example: How objects behave when tossed in the air, dropped, or hit with a velocity. Present graphs of the objects distance, velocity, and acceleration.

1. If a ball is hit with a certain velocity and direction, will it clear a wall of certain height and distance from the batter. There are plenty of different graphical models that can be created.

**Assessment:**

- 30% Quiz – You will probably have no more than 10 minutes to complete each quiz. The quizzes will be based off of the homework from the class before.
- 35% Test – You will take 3 to 5 tests during each quarter. You will have no more than 1 hour to complete each test. You will also do one project in the fourth grading period, which will count as a test grade.
- 15% Homework – You will have homework every night, and it needs to be completed before the beginning of class.
- 15% Classwork- Time given to complete assignments in class will be considered classwork. If classwork is not completed during class it will be accepted the next class.

5% class participation and group work

Homework or classwork that is turned in late (after collected) will result in a 15 point reduction in grade earned per weekday, not class. Example if an assignment is due Monday 100%, turned in Tuesday 85%, turning in Wednesday 70%, Thursday 55%, etc. There are videos available on the website that describe content that is covered in class. Extra credit will be given to the first person who finds mistakes in a web video and email me with the time that the error occurred and what the error is (with the correction). If no homework or classwork is completed for the quarter a grade of F will be given no matter what the average of the student is. This is a honors level class and LAZY will not be permitted.

**Parents/Guardian Contact:**

Progress Reports will be issued at the end of the fourth week of every nine-week term. Report cards are sent home a week after the end of the nine week term. I will send home progress reports with the students periodically throughout the year. The Miami-Dade school system web site will have access to student's grades. I strongly urge students and parents to talk to me in cases of any particular issue or concern, and also to keep up to date on grades through the web site.

Student Evaluation

Students are evaluated primarily by their performance on periodic written tests and quizzes. Additionally homework, classwork, and class participation (their work at the board and the challenges of the presenter) are the basic elements of the quarterly grade. Students demonstrate solutions to calculus problems Written and orally on a regular basis, sometimes together in groups, sometimes individually presenting to the entire class, and grades are issued accordingly. Enrichment assignments are provided throughout the course, and students are encouraged to exceed the basic course requirements to receive maximum benefit from the course.

Student Signature:\_\_\_\_\_ Parent Signature:\_\_\_\_\_