Course Syllabus

AP Calculus AB

2012-2013

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Textbook: Larson, Hostetler, Edwards. *Calculus of a Single Variable*, 8th ed., Houghton Mifflin
Replacement Cost: $70.92
ISBN: 978-0-618-50304-9

Course Description: AP Calculus AB is a year-long course comparable to calculus courses offered at colleges or universities. Students need to have a thorough knowledge of college preparatory mathematics including, trigonometry, analytic geometry, equations and graphs, and lines and conics. Students taking this course should be adequately prepared to study elementary functions, limits and continuity, differential and integral calculus.

Calculus AB is concerned with developing the students' understanding of the concepts of calculus and providing experience with its methods and applications. The course emphasizes a multi-representational approach to calculus, with concepts, problems, and results being expressed graphically, numerically, analytically, and verbally.

Prerequisite: Accelerated Pre-Calculus (Accelerated Math 3)
OR Integrated Trigonometry / GPS Pre-Calculus (Math 4)

Requirements:

1. Textbook, notebook, TI-83 or TI-84 calculator, and pencils
2. Completion of daily work
3. Constructive use of class time
4. Active participation in class discussion
5. Willingness to seek extra help when needed

AP Statement: Per Fulton County and College Board policy, any student that does not take his or her AP exam FOR ANY EXCUSED OR UNEXCUSED REASON is responsible for the returned/unused exam fee of $13. Any student that is passing the AP class, even if it is with a 70%, MUST take the AP exam for that course.

Grading Policy: Tests: 60% Quizzes/Projects: 15% Homework: 10% Final: 15%

Grading Scale: 90-100: A 80-89: B 70-79: C 0-69: F

Homework: Homework will be assigned daily and should be completed consistently. In addition, students are expected to review notes daily in order to prepare for class. Failure to complete homework may result in a student failing the course. Each assignment must be legible and have the proper heading, including name, date assigned, page numbers, and problem numbers. All problems are to be copied (except word problems) and all work must be shown in order to receive credit for the assignment. Late assignments, except for excused absences, are not accepted or eligible for points. Homework points will be acquired through random checks for completion. Students attending TAG seminars must turn in work on days when they will miss class. Work not turned in on seminar days will be considered late.

Make-Up Work Policy: Following an absence, it is the student's responsibility to contact his/her teachers to arrange for make-up work. The contact must be made within one school day of returning. If the teacher is absent, contact should be made upon the first day of the teacher's return.
Students are given the same number of days to complete make-up work as the absence, not including the day of return. For instance, if a student is absent two consecutive days, he/she has two days (not including the day of return) to complete the assignments. The teacher will establish a reasonable schedule for completing tests, labs, etc. that cannot be done independently by the student. The policy above applies to excused absences. Students with an excused absence are eligible to make-up work for full credit. While students are allowed to make up work due to unexcused absences, the make-up work for students with unexcused absences may be penalized up to 10% of the maximum value of the graded assignment.
Assignments made prior to the absence, including tests/quizzes scheduled for the day of return, are generally due upon the student's return. Students who are present for any portion of the school day are expected to turn in all assignments due on that day in order to receive full credit.
Failure to complete make-up work within the designated time frame may result in a grade reduction or loss of credit for the assignment. Assignments missed due to pre-approved absences are due upon the student's return unless the teacher has approved other arrangements in advance. It's important to turn work in on-time!

Home Access Center: As you may already know, Alpharetta High School has a program called Home Access Center that allows you to view your child's academic progress and attendance on-line. You may contact Deborah Brown at 770-721-7640 X128, or email her at BrownDC@fultonschools.org to obtain a log on password to your account. Due to limited access to a telephone during the day, the best way to contact us is by email.

Extra Help: Help sessions are Monday & Thursday Morning (7:50AM – 8:20AM) & Wednesday Afternoon (3:50PM – 4:30PM) in RM 4317.

Expectations:

1. Attend class daily. This is critical to your success!!
2. Help make the classroom environment positive and productive.
3. Respect yourself, your school, and others.
4. Believe in yourself and always put forth your best effort on each assignment.
5. Be on time, prepared and organized. Students who are tardy will be reported and on the third tardy, referred to administration.
6. Stay on task (e.g. taking notes, participating in discussions, working on math homework, projects, etc.).
7. No eating or drinking in class (except water in a CLEAR plastic bottle).
8. Seek extra help (from me or from peers) if you are having trouble.
9. Follow all school rules. Appropriate school behavior is expected at ALL times.

AHS RISE (Re-teaching Instructional Support & Enrichment) & Recovery Policy:
Students with a course cumulative average of a 74 and below must attend RISE sessions to demonstrate a legitimate effort to meet all course requirements. After attending RISE sessions, attending class regularly, and completing the RISE Assignment*, a student is eligible to request recovery on major assessments, which he or she may score up to 74%. The recovery grade will replace the previous grade but will not exceed 74%. The recovery process must be initiated by the student within five days of the student

receiving the graded assignment and the grade being posted to Home Access Center (HAC). Furthermore, all recovery opportunities expire ten days before the end of each semester.

*All unit work assigned for RISE must be completed in order to exhibit mastery to be eligible for recovery.

Lost/Damaged Book Policy: Students are financially responsible for all books issued by Alpharetta High School. Textbooks may not be left in classrooms, and teachers are not responsible for students' books once books have been issued to the student. The copy issued to the student must be turned in at the end of the course. Students will not receive credit for turning in another student's book, and students may not turn in replacement books. The cost of replacement will be assigned to any student that fails to turn in the exact book she/he was issued and/or to any student that turns in a damaged book. If a student is issued a damaged book (i.e. broken binding, torn pages, water damage, writing, etc), it must be brought to room 1330 for a replacement book or to document the damage. There is a 2 week grace period for students to document damage before he/she will be held accountable.

Academic Honesty Expectations: Student assignments turned in for grading should be the sole work of that individual student. To prevent cheating and plagiarism, students may not collaborate with other students or adults on their assignments unless the teacher has given specific permission to do so. This includes the giving or receiving of information in any manner, including electronically. In situations where collaboration is allowed, the teacher will clearly define what level of collaboration is appropriate. Under no circumstances is it acceptable for 2 students to submit identical work, unless the assignment included a group component that makes it permissible. Students are encouraged to consult with their teacher regarding what level of collaboration is acceptable prior to completing/submitting work.
In an effort to encourage good study habits, fair competition, and positive development in the area of academics, the Alpharetta faculty supports a strong policy against cheating and plagiarism. Students suspected of cheating or plagiarism will be reported to their administrator.

Students found guilty of an honor code violation will receive disciplinary consequences.
AHS Plagiarism Statement: A particular kind of honor code violation occurs with plagiarism. Plagiarism is defined as the use of another's words or ideas and the presentation of them as though they are entirely one's own. Acts of plagiarism include but are not limited to using words or ideas from a published source without proper documentation; using the work of another student (e.g., copying another student's homework, composition or project); using excessive editing suggestions of another student, teacher, parent, or paid editor.

Unless directly stipulated by the teacher, collaboration on written work is not acceptable. Students who willingly provide other students with access to their work are in violation of the Alpharetta High School Honor Code. From time to time, students will be required to register with and post assignments to the Fulton County approved plagiarism detection site, turnitin.com. Should the teacher require posting the particular assignment to turnitin.com, the assignment must have been posted to the website prior to the time the assignment is collected in class or the assignment will be considered late.

Unit of Study	Objectives: Student will be able to…
	Fall 2012
Limits and Continuity	• evaluate limits algebraically, numerically, and graphically • find equations of vertical and horizontal asymptotes • determine whether a function is continuous at a point • classify discontinuities as: removable, jump, or infinite • understand the Intermediate Value Theorem
The Derivative	• find the derivative of a function using the definition of the derivative • determine if a function is differentiable at a point (analytically, graphically, and numerically) • find whether a function is locally linear at a point • use the theorems on differentiation to find the derivatives of polynomial and rational functions (Power Rule, Product Rule, Quotient Rule, Chain Rule) • find the equation of the tangent line to a curve at a point • find the equation of the normal line to a curve at a point • understand average rate of change • understand instantaneous rate of change • use implicit differentiation • find higher order derivatives • graph the derivative from data • understand the concepts of marginal cost, marginal profit, marginal revenue • understand the definition of the derivative using the symmetric difference quotient • understand and apply the Extreme-Value Theorem • understand and apply the Mean-Value Theorem • use the First and Second derivative test • connect F'(x) and F''(x) with the graph of F(x) • find derivatives of polynomial, rational, exponential, and trigonometric functions • solve rectilinear motion problems • understand parametric equations
	Spring 2013
Logarithmic, Inverse, Trigonometric Functions and Applications	• evaluate limits algebraically, numerically, and graphically • find equations of vertical and horizontal asymptotes • determine whether a function is continuous at a point • classify discontinuities as: removable, jump, or infinite • understand the Intermediate Value Theorem
Indefinite Integrals	• evaluate indefinite integrals using the Power Rule and the Chain Rule for integration • use integration by "u-substitution" • evaluate definite integrals with and without a calculator • understand and apply the Fundamental Theorems of Integral calculus
Applications of Integrals	• find the net distance traveled • find the total distance traveled • approximate areas using LRAM, RRAM, MRAM, and trapezoids • understand the Reimann Sum definition • calculate areas under and between curves • calculate the average value of a function

	• find volumes of solids with known cross-sections
Differential Equations	• solve differential equations of order 1 by the method of "separation of variables" • solve growth / decay problems, logistic problems, and other applications to differential equations • understand slope fields • sketch a slope field given a differential equation
Cross-Content Skills	• translate verbal representation of a calculus problem situation into appropriate notation • compare / contrast numerical, graphical, verbal, and analytical representations of problem situations • articulate, through speaking and writing, the solutions and related implications associated with mathematical problem situations • flexibly incorporate a variety of representations (verbal, analytical, numerical, graphical) into problem solving repertoire