EAGLES LANDING HIGH SCHOOL AP CALCULUS BC SYLLABUS

<u>COURSE DESCRIPTION</u>: This is an AP Calculus class with two goals. The first goal is to learn material presented in a college-level Calculus I class. The second goal is to achieve a score on the AP Exam given by the College Board on May 5th that is good enough to obtain college credit. Students should be motivated and possess excellent study habits as well as a talent in mathematics to properly succeed. It is essential that each student works hard in order to fully understand and master all of the concepts presented. The textbook is utilized as a resource for homework/practice problems. The tests will be made to test the student's understanding of the material and will not come directly from the text. Below you will find the general guideline for the course divided by semester. The time allotted for each topic is approximate only.

<u>TEXTBOOK</u>: <u>Calculus of a Single Variable</u>, 10th edition, Houghton Mifflin Company, 2015.

FIRST SEMESTER (ends at Winter Break)

TOPIC	TIME	CHAPTER
Limits/Squeeze Theorem/Continuity/Asymptotes/Formal Def of Derivative	1 week	chapter 1/2
Derivative Properties/Product Rule/Quotient Rule	1 week	chapter 2
Derivatives of Trig Functions/ Chain Rule/Implicit Diff	2 weeks	chapter 2
Related Rates	1.5 weeks	chapter 2
Extrema/Rolle's Theorem/Mean Value Theorem/1st and 2nd Derivative Test/ Concavity/Curve Sketching	2.5 weeks	chapter 3
Calculus of Parametric Curves and Vector Functions	1 week	chapter 10
Optimization/Differentials/Linear Approximations/Particle Motion/Euler's Method	1.5 weeks	chapter 3
Summation/Antidifferentiation Introduction/Riemann Sums/ Rectangle approximation (left, right, midpoint) and Trapezoidal	2 weeks	chapter 4
Properties of Definite Integrals/Fundamental Theorem of Calculus/ Average Value/U-Substitution/Particle Motion Revisited	2 weeks	chapter 4
Natural Log Properties/Derivative of Natural Log/Applications/ Integrating to get Natural Log/Integrals of Trig Functions	2 weeks	chapter 5

SECOND SEMESTER (ends at Summer Break)

TOPIC	TIME	CHAPTER
Natural Exponential Function Properties/Derivative and Integral of Base "e"/ Exponential Growth and Decay/Derivatives of Inverse Trigs/ Integrals Involving Inverse Trigs	2.5 weeks	chapter 5
Indeterminate Forms/L'Hopital's Rule/Improper Integrals	1.5 weeks	chapter 8
Calculus of Sequences and Series/Taylor Polynomials	4.5 weeks	chapter 9
Slope Fields/Differential Equations/Separation of Variables Technique/Logistic Growth	2 weeks	chapter 6
Area Between Curves/Volume of 3-D Figures (disk, shell, known cross-sections) Techniques of Integration/Integration by Parts/Integrals of Higher Degree Trigs	3 weeks	chapters 7/8
Calculus of Polar Curves	2 weeks	chapter 10
After Spring Break is devoted to AP Review		

<u>GRADING</u>:　　　　Practice Work and Assessments:　80%　　　　Final Exam:　20%
　　　　*Credit for courses is awarded on a year-long single credit basis.

<u>NOTEBOOK</u>: Each student should keep a notebook containing all notes and examples from class in an orderly fashion. This helps with organization of work and makes reviewing/studying easier. You may also find it beneficial as you prepare for the AP test and take a calculus course in college.

<u>OTHER INFORMATION</u>:
　　　　Please come and see me often if you are feeling unsure of the material in any way.
　　　　Homework is assigned on a daily basis and expected to be fully completed.
　　　　Visit our class informational site at <u>www.amazingcalculus.wikispaces.com</u> for resources.

County website: <u>www.henry.k12.ga.us/</u>　　　　School website: <u>www.henry.k12.ga.us/elh</u>
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