

AP Calculus BC

2011-2012

COURSE PURPOSE:

AP Calculus BC is equivalent to a full year of college Calculus. Students will expand their knowledge and understanding of the wonders of our God's great power in creation. Topics in this course include all those in AP Calculus AB with the addition of some other major topics, such as advanced integration techniques, infinite series and the calculus of parametric, vector and polar functions. Knowledge and skills attained in this class will prepare students to successfully complete the Advanced Placement Examination for Calculus BC.

COURSE OUTCOMES:

In Calculus, students will:

- 1) Evaluate limits graphically, numerically, analytically and using L'Hopital's rule.
- 2) Understand the meaning of the derivative in terms of rate of change and local linearity.
- 3) Be able to use their calculator as a tool to help them solve problems, experiment, and verify conjectures.
- 4) Be able to communicate mathematical conclusions both orally and through written responses.
- 5) Be able to work with functions represented graphically, numerically, analytically, or verbally and should understand the connections among these representations.
- 6) Be shown God's hand in mathematics as they learn the wonderful relationship between derivatives and the definite integral.
- 7) More fully understand God's creation by being able to model problem situations with functions, differential equations, and integrals.
- 8) Represent differential equations with slope fields, solve separable differential equations analytically, and solve differential equations.
- 9) Integrate function using a various techniques, such as substitution, parts, partial fractions, trigonometric substitution and improper integration.
- 10) Determine the Maclaurin series for the functions e^x , $\sin x$, $\cos x$, and $1/(1-x)$.
- 11) Evaluate and prove whether a series converges or diverges.
- 12) Differentiate parametric, vector and polar functions.

COURSE GOALS:

- Students will develop an understanding that God may be glorified by pursuing a career in a mathematics related field.
- Students will glorify God through both student-teacher and peer relationships that are developed throughout the year.

AP EXAM

The AP exam is given on May 9, 2012. Students enrolled in AP Calculus are expected to take the exam. College credit is earned upon successful completion of the exam.

GRADING

Quarter

Assignments/Daily Quizzes- 30%
Quizzes/Take Home Tests/Projects- 30%
Tests- 40%

Math Track: Extra Credit

Semester

1st/3rd Quarter- 40%
2nd/4th Quarter- 40%
Semester 1st/2nd Exam- 20%

GRADING INTERPRETATIONS & CLASSROOM GUIDELINES

Assignments consist of in class work and homework. Homework assignments will be given regularly and should be completed on arrival to class. Homework will be collected and graded on effort and completeness, these assignment are worth 5 pts each. See rubric below. Missing assignments are 0 pts. Late assignments and homework that receives a 0 may be turned in the 1 weeks from the day it is due or returned for half credit, after one week no credit will be given.

Homework Grading

Homework will be assigned daily. It is meant to help increase your understanding of the material and also aid in identifying concepts that you do not understand. It is the students' responsibility to finish their homework completely before the day it is due. If questions arise it is the responsibility of the student to get help from a parent, teacher or another student and make notes on assignment. Homework will be graded on completeness, quality and demonstrated learning.

	Completeness and Quality
5	-100% of the problems are attempted. -Work is shown. -Wrong answers are corrected and notes are made. -Written nicely, easy to read and follow.
4	90% of the problems are attempted, work is shown, most wrong answers corrected and written nicely.
3	80% of the problems are attempted, little work shown, some wrong answers corrected and/or written poorly.
2	70% of the problems are attempted, little work shown; few wrong answers are corrected and/or written poorly.
1	60% of the problems are attempted, no work shown; few wrong answers are corrected and written poorly.
0	50% of the problems are attempted, work shown and written nicely.

- **Quizzes** will be given frequently. Daily quizzes (1-5pts) may not be made up. Scheduled quizzes are larger, like tests, but cover only a few units or specific topics.
- **Tests** will be given after each unit. Generally 1 or 2 tests per quarter are given and are 100 points each. Students who miss one-day prior to test must take test on date given. Students who miss a test due to being absent must take test next day in class. If it is not taken 2-percentage points will be deducted daily until taken. Special circumstances may be given to students with extended absences in the week, etc.

- **Take Home Test** will be given the week of a unit test. Generally they will be more difficult than the unit test, and will cover material more specific to AP Calculus Test. The amount of questions and time given to complete each test may vary.
- Students enrolled in AP Calculus are expected to attend all 4 **Math Track** competitions. Exceptions need to be cleared ahead of time with Mr. Gottshalk.
- Students must also bring necessary **materials** to class each day, such as their **book, 3 ring binder with a section for notes and homework, pencil and calculator (TI-83/84 Plus)**. Students who repeatedly forget their materials will face other disciplinary action.
- If a student is **absent** it is the job of the student to obtain missed notes and assignments, either from the teacher, a peer, or visit the website: **www.wiscomathematics.com** when at all possible. Absent assignments must be turned in 2 days from absent date or assignment will be considered late. Special exceptions will be made for long-term absences.
- Students should be actively participating in class. **Participation** includes answering or asking questions, helping others with concepts, and doing assignments presented in class. Students not participating with assignments in class may have their homework grade lowered. Students who disrupt others or the teacher by not actively participating in class may receive other disciplinary action.
- Each student is to display Christian love and respect to each other and teacher.

Keys to Success in AP Calculus

Work Hard (It will be worth it)

Do Your HOMEWORK (Without practice you will not get better)

Ask Questions (The smartest people have the most questions)

Work Together (Study groups are fun and they do really help)

Trust in God (No matter how hard it gets just remember John 3:16)