

# Advanced Placement Calculus BC 2015-2016

Northland Preparatory Academy Mathematics Department

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## Contact Information

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## Course Description:

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

- Functions, Graphs, and Limits (graph analysis, one- and two-sided limits of functions, asymptotic and unbounded behavior, continuity as a function property, parametric/polar/vector functions)
- Derivatives (concepts and definitions, derivatives at points and as functions, higher-order derivatives, applications and computations, Euler's method and L'Hospital's rule)
- Integrals (definitions and properties, applications, Fundamental Theorem of Calculus, antidifferentiation, integration by parts, differential equations, numerical approximations)
- Polynomial Approximations and Series (concepts, series of constants, Taylor and Maclaurin series)

Generally, these topics comprise chapters 1-10 in the text.

## Materials Needed:

- Text: Calculus, Graphical, Numerical, Algebraic by Finney, Demana, Waits, Kennedy. Prentice Hall, 2003.
- TI-83 graphing calculator (or better)
- Note-taking materials (pencils, paper, etc.)

## Assessment:

Grades for each marking period are determined as follows:

Quizzes and Tests	80% (weighted via points, there is typically a major quiz or test every 1-2 weeks)
Homework and Class Work	20% (effort-based, homework is checked most days at the beginning of class, and making a full attempt on each problem earns full credit)

The overall fall semester grade is a weighted mean calculated as 40% from each quarter and 20% from the semester exam. In the spring, there is no exam (due to the AP exam), so the semester grade is calculated as an arithmetic average of the two quarter grades. All letter grades are computed using the standard NPA 10-point grading scale (90%+ = A, 80%+ = B, etc.).

## Classroom Norms:

Unless otherwise noted, all NPA rules and regulations are in place at all times in my classroom. Some particulars:

- Gum chewing and food/drink are all right – just don't be a slob!
- No music-making machines during direct instruction or formal assessment (quiz or test) – it's ok to listen to your music during individual work time
- No cell phones *ever* – If I see you using your cell phone or any other unapproved device, I will take the device.

Keep in mind that I'm abiding by all of these norms right along side all of you!

## What I am doing for you:

- *Teaching* each concept to the best of my ability  
I take each concept from this course and think about the best way for me to convey this knowledge to a group of people.
- Assigning meaningful homework  
My homework assignments are relevant to the classroom work, both in content and difficulty. In addition, they are a good indication of the type of material on quizzes and tests.
- Being readily available to help you through this course  
I am committed to your success, whatever that word happens to mean to you. For many of you, that means extra time with me outside of class. I am available for in-school extra help via the schedule below, and you are always welcome to call me at home with any other pertinent questions or concerns.
- Helping you all develop into better people  
I am pushing you to develop your cognitive math abilities, but hopefully some others as well. And we (myself included) are all walking out of this school year as better people.

## What you are doing for me:

- Being *present*  
You are present in class every day, both *physically* and *mentally*. You come to class every day with all of your materials, ready to *engage yourself* in our process of learning. Credit is not given for any assignments completed late due to an unexcused absence. If you know in advance about an excused absence, talk to me *before* you miss class. Either before or after any type of absence, you may e-mail me for the appropriate PowerPoint notes. Unless otherwise stated, any make-up work is turned in (homework) and/or completed (quiz or test) the day you return from your excused absence.
- Helping yourself  
Believe it or not, you *don't need me* for you to learn any of the material in this course. I am a great bonus to have, and of course, I'll be here with you every step of the way. But the best thing you can do to succeed is to empower yourself. This means that you do each homework assignment to the best of your ability. I

will check homework on a variable basis, but it's mostly a tool for self-evaluation and self-improvement. You complete reading-ahead assignments to better prepare yourself for each day's class. You engage yourself in class, completing any warm-up or classroom exercises on your own. Lastly, you seek extra help when you need it. I'm devoting most of my life to teaching you math this year, and you should always be able to get in touch with me.

**Extra Help:**

Excepting any "Proctor duties" for the school, I am available for extra help every morning, Monday through Friday, beginning at 7:15, and every afternoon, Monday through Friday, until 3:45. All extra help sessions are held in Room 813.