

# A.P. Calculus AB

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Congratulations! You've made it to A.P. Calculus. This sheet will help to explain the course and what is expected of you. Be sure to ask questions if there is anything you do not understand.

## COURSE DESCRIPTION

AP Calculus AB is designed for students who have successfully completed three years of math including Honors Geometry and Honors Algebra II. This course reviews elementary functions with 90% of the instruction focused on differential and integral calculus and related applications. This course will prepare students to take the Advanced Placement Examination in May. Students may earn college credit depending on the results of the examination. A graphing calculator is necessary.

## ALIGNMENT TO THE IOWA CORE CURRICULUM

Understands and applies concepts of algebra and trigonometric relationships.

## WHAT ARE WE GOING TO DO IN THIS CLASS?

<u>Topics to be covered</u>	<u>Entry Level Skills</u> (a.k.a. "You should already know this.")
Functions, Graphs, and Limits <ul style="list-style-type: none"><li>• Analysis of graphs</li><li>• Limits of functions (include one-side limits)</li><li>• Asymptotic and unbounded behavior</li><li>• Continuity as a property of functions</li></ul> Derivatives <ul style="list-style-type: none"><li>• Concepts of the derivative</li><li>• Derivative as a function</li><li>• Second derivatives</li><li>• Applications of derivatives</li><li>• Computation of derivatives</li></ul> Integrals <ul style="list-style-type: none"><li>• Interpretations and properties of definite integrals</li><li>• Applications of integrals</li><li>• Fundamental Theorem of Calculus</li><li>• Techniques of antidifferentiation</li><li>• Applications of antidifferentiation</li><li>• Numerical approximations to definite integrals</li></ul>	Background in functions <ul style="list-style-type: none"><li>• Linear</li><li>• Polynomial</li><li>• Rational</li><li>• Exponential</li><li>• Logarithmic</li><li>• Trigonometric</li><li>• Inverse trigonometric</li><li>• Piecewise defined</li></ul> Values of trig functions <ul style="list-style-type: none"><li>• <math>0, \frac{\pi}{6}, \frac{\pi}{4}, \frac{\pi}{3}, \frac{\pi}{2}</math></li></ul> Basic knowledge of trig identities Basic algebraic manipulation-rational expressions and exponents Expertise on TI-83+, TI 84+ or TI-89

## SUPPLIES

**Your textbook** - Calculus, Graphical, Numerical, Algebraic, 5<sup>th</sup> Edition, AP Edition, by Finney, Demana, Waits, Kennedy and Bressoud, copyright 2016.

**A calculator** - You will need to own or have access to a graphing calculator. I recommend a TI-83+/84+ or a TI NSpire CX CAS. Let me know if you have a different calculator. A graphing calculator is REQUIRED for the AP Calculus Exam that you will be taking in the spring. Calculators with a QWERTY keyboard are not allowed.

**A notebook or two** (with clean paper - OK, not a big issue right now, but in about 3 months some of you will be trying to cram notes onto the back cover or in unused margins, etc.) - Keep your notes neat and organized. They should be kept separate from your homework.

**A pencil** (with an eraser - because we all make mistakes).

## INSTRUCTIONAL STRATEGIES

Instructional strategies that will be used in this course, but are not limited to are: direct instruction, active participation, graphic organizers, presentation, cooperative learning, advanced organizers, probing questions, questioning strategies, student projects, technology, note taking, modeling.

## ASSESSMENTS

**Summative** - These will be unit tests. Tests will always be announced in advance. They will be worth approximately 60 points.

**Quizzes** - These may be announced or unannounced. We have anywhere between 1 and 3 quizzes per chapter, each worth 20 points.

**Formative** - I will use white boards, discussions, and written assessments that are ungraded to assess student knowledge throughout the units.

**Self** - Homework assignments are graded but are also a way for students to check their own knowledge. Students are expected to check their own answers and we will have time in class to go over questions.

## GRADING

Your grade will be based on the following using total points:

**Tests** - Tests will always be announced in advance. They will be worth approximately 60 points. We will be covering only six chapters in the book. (The chapters are long.) Take the tests seriously and do a good job the first time. Retake tests will be available. Before retaking a test you will be required to meet with me to go through your test. You will also be required to hand in an additional review assignment. Your final score will be calculated by taking 2/3 of your retake score and adding 1/3 of your original score.

**Quizzes** - These may be announced or unannounced. We have anywhere between 1 and 3 quizzes per chapter, each worth 20 points. There will NOT be any retakes on quizzes.

**Homework** - Most homework assignments will be collected at the beginning of class on the day of the chapter test. Homework will be worth 20 points per chapter. Other assignments will be collected at different times. Due dates for these will be given at the time the assignment is made. Homework handed in late (including late but on the same day) will be penalized 10% per day late.

**Other assignments or projects** - Other assignments or projects will be assigned throughout the year. Information will be given at the time the assignment is made.

**Semester Exam** - You will be given a semester test during exam days at the end first semester. There will be a final, cumulative exam at the end of second semester, but it will be given over 2 days of class time. Each will be approximately 20% of your semester grade.

**Extra Credit** - I may make small amounts of extra credit available at various times during the year - but don't count on it. Extra credit will not be available during the last week of each semester. When extra credit is assigned a due date, none will be accepted late.

### **Grading Scale:**

93.0 - 100%	A	83.0 - 86.99	B	73.0 - 76.99	C	63.0 - 66.99	D
90.0 - 92.99	A-	80.0 - 82.99	B-	70.0 - 62.99	C-	60.0 - 62.99	D-
87.0 - 89.99	B+	77.0 - 79.99	C+	67.0 - 69.99	D+	Below 60%	

## **THE AP EXAM!!**

The A.P. Calculus exam will be administered the morning of Thursday, May 5, 2016. Scoring well on the AP exam may earn you a semester of college credit and placement into the second semester of calculus at the college level. It is my expectation that everyone enrolled in this course will take the AP test. Information regarding exam registration will be given to you second semester.

## **ABSENCES**

If you miss class FOR ANY REASON it is your responsibility to get the assignment. Assignment sheets will be given to you at the beginning of each chapter. Be sure to pick up anything that you may have missed when you were absent.

If you miss class on a test/quiz day, you will be expected to take the test/quiz on the day you return to school. If you miss the day before a previously announced test/quiz, you will be expected to take the test/quiz with the rest of your class. If you miss more than one day I will work with you to make other arrangements.

Try not to miss this class. Most people find it difficult to make up calculus. If you know you will be gone, be sure to get the assignment before you leave.

Problems with absences (excused or unexcused) or tardies will be handled according to the Senior High School attendance policy.

## **GETTING HELP**

Working together is strongly encouraged. (Copying is not.) You will find that you can learn a lot from each other. If you are having trouble with calculus you need to get help IMMEDIATELY. I will be available after school most days, and before school on days when we have no meetings scheduled. My prep time is 2<sup>nd</sup> hour and I am available that time most days. Let me know when you want to meet me so I can be sure I'm in my room when you are looking for me. You may also come in without an appointment, but it may take a few minutes to track me down.

The internet is also a great resource. Some helpful websites are:

[www.khanacademy.org](http://www.khanacademy.org)

[www.patrickjmt.com](http://www.patrickjmt.com)

<http://online.math.uh.edu/HoustonACT/>

## **BEHAVIOR EXPECTATIONS**

This is an Advanced Placement course. I expect you to behave as the responsible students that you are. Should a problem arise I may contact your parents and/or pursue assistance from the office.

Cheating on anything for this class (tests, quizzes, assignments or projects) will not be tolerated. Consequences may include, but are not limited to, a score of zero on the work, contacting your parents and/or Assistant Principal, or an F in the course.

## **COMMUNICATION**

The best way to contact me with any questions or concerns is via email ([jjorgenson@dbqschools.org](mailto:jjorgenson@dbqschools.org)). You may also reach me by phone at 552-5590. Messages left will be returned as soon as possible. I also update Powerschool after every test or quiz we take within a day or two of the assessment. It is a great way to keep track of your or your child's grade. I will also post homework answers online for students to check their work.