

COURSE SYLLABUS

AP Calculus A/B

Last Modified: March 2016

Course Description: Together the two semester courses, AP Calculus A and AP Calculus B, are designed to provide the student with skills required for the AP Calculus AB exam and to provide the student with a strong foundation for success in their future math courses. The major topics in first semester include limits, asymptotic and unbounded behavior, function continuity, derivatives as a point and as a function, the Mean Value Theorem, second derivatives and applications of derivatives. Major topics in second semester include definite integrals, the Fundamental Theorem of Calculus, techniques and applications of antidifferentiation (differential equations, modeling, velocity, area and volume, physics) and numerical approximations.

Prerequisites: The following courses are prerequisites for AP Calculus.

- Algebra 2
- Trigonometry
- Pre-calculus

Course Materials: AP Calculus has the following free digital textbook embedded within the course. A hand-held graphing calculator is required. Some suggested models are listed below.

Publisher: Pearson

Title: Calculus AP Edition

Author(s): Briggs, Cochran, Gillett

Year published: 2014

Student edition text:

ISBN-10: 0-13-347571-9

ISBN-13: 978-0-13-347571-5

Graphing Calculator: TI-83 Plus, TI-84 Plus, or TI-89. Otherwise, check with your instructor for other options.

Learning Targets: These are major learning targets for AP Calculus.

- **Concepts and Procedures:** Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency.
- **Problem Solving:** Students can frame and solve a range of complex

problems in pure and applied mathematics.

- **Communication and Reasoning:** Students can clearly and precisely construct viable arguments to support their own reasoning and critique the reasoning of others.
- **Data Analysis and Modeling:** Students can analyze complex, real-world scenarios and can use mathematical models to interpret and solve problems.

Grade Scale:

Final letter grades will be calculated based on these percent grades.

Letter	Range (%)
A	95.0+
A-	90.0 – 94.9
B+	87.0 – 89.9
B	84.0 – 86.9
B-	80.0 – 83.9
C+	77.0 – 79.9
C	74.0 – 76.9
C-	70.0 – 73.9
D+	67.0 – 69.9
D	64.0 – 66.9
D-	60.0 – 63.9
F	0.00 – 59.9

Course Methodology: This is an inquiry-based course. Students will generate knowledge through online readings, asynchronous discussions with students and their instructor, interactions with online tutorials, and online and hands-on simulations. A semester project developed by each student will be used to demonstrate knowledge and understanding of the material in the course.

The instructor will act as a guide, a facilitator, an events planner, and a resource advisor. He/she will always be available through e-mail. The student must actively construct and acquire knowledge by being intrinsically motivated to succeed. To succeed, students must participate and complete all readings and activities. This course requires the student's active participation. Both formal and informal assessment methods will be used in the course. Informal assessment will include an evaluation of the quality and timeliness of participation in class activities. Formal assessment may include multiple-choice quizzes, tests, discussion board participation, and written assignments. A final exam will be given at the end of the course.

Course Expectations: Students are expected to conduct themselves in a responsible manner that reflects sound ethics, honor, and good citizenship. It is the student's responsibility to maintain academic honesty and integrity and to manifest their



commitment to the goals of NUVHS through their conduct and behavior. Students are expected to abide by all NUVHS policies and regulations. Any form of academic dishonesty, or inappropriate conduct by students or applicants may result in penalties ranging from warning to dismissal, as deemed appropriate by NUVHS.

Communication: Throughout this course students will need to be in close contact with their instructor and fellow students. Students are expected to communicate via email and electronic discussion boards. Therefore, students should plan on checking email at least three to five times a week and participate in the discussion boards during the weeks they are live.

Instructors strongly encourage and welcome open communication. Clear, consistent, and proactive communication will ensure a successful experience in this course. It is the student's responsibility to notify the instructor immediately if and when a personal situation occurs that affects his/her performance in this class. Being proactive with communication will result in a quick solution to any problems that may occur.

Support: At NUVHS you will have access to multiple support teams. Who you contact will depend on the questions you have. Always start by contacting your teacher through the Message Center in the course. Your teacher should be able to answer your question, but if they can't, then they will direct you to another support team. If you have questions about any of the course content, your grades, or course policies, you should contact your instructor.

For questions about your enrollment, transcripts, or general school-wide policies, you can contact [NUVHS Student Services](mailto:info@nuvhs.org) at info@nuvhs.org or by phone at 866.366.8847. For example, if you would like to withdraw from your course, you should contact Student Services. Please note that a refund for your course can only be obtained if you drop within the first seven days of enrolling in the course.

For help with login/password issues, or other technical issues specific to the Blackboard website, you can contact the team at [National University Blackboard Learn](#). They can also be reached by phone at (888) 892-9095.

Course Outline for AP Calculus A (First Semester)		
Unit	Topic	Activity
1	Chapter 2 Limits	<ul style="list-style-type: none"> • Lessons: 2.1 to 2.3 • Homework: 2.1 to 2.3 • Class Discussion • Chapter 2 Test 1
2	Chapter 2 Limits (Continued)	<ul style="list-style-type: none"> • Lessons: 2.4 to 2.7 • Homework: 2.4 to 2.7 • Class Discussion • Chapter 2 Test 2
3	Chapter 3 Derivatives	<ul style="list-style-type: none"> • Lessons: 3.1 to 3.3 • Homework: 3.1 to 3.3 • Class Discussion • Chapter 3 Test 1
4	Chapter 3 Derivatives (Continued)	<ul style="list-style-type: none"> • Lessons: 3.4 to 3.6 • Homework: 3.4 to 3.6 • Class Discussion • Chapter 3 Test 2 • Midterm Exam
5	Chapter 3 Derivatives (Continued)	<ul style="list-style-type: none"> • Lessons: 3.7 to 3.9 • Homework: 3.7 to 3.9 • Class Discussion • Chapter 3 Test 3
6	Chapter 3 Derivatives (Continued) Chapter 4 Applications of the Derivative	<ul style="list-style-type: none"> • Lessons: 3.10 to 3.11 • Homework: 3.10 to 3.11 • Chapter 3 Test 4 • Lessons: 4.1 to 4.2 • Homework: 4.1 to 4.2 • Class Discussion • Chapter 4 Test 1
7	Chapter 4 Applications of the Derivative (Continued)	<ul style="list-style-type: none"> • Lessons: 4.3 to 4.5 • Homework: 4.3 to 4.5 • Class Discussion • Chapter 4 Test 2

8	Chapter 4 Applications of the Derivative (Continued)	<ul style="list-style-type: none"> • Lessons: 4.6 to 4.8 • Homework: 4.6 to 4.8 • Class Discussion • Chapter 4 Test 3 • Final Exam
---	--	---

Course Outline for AP Calculus B (Second Semester)		
Unit	Topic	Activity
1	Chapter 5 Integration	<ul style="list-style-type: none"> • Lessons: 5.1 to 5.3 • Homework: 5.1 to 5.3 • Class Discussion • Chapter 5 Test 1
2	Chapter 5 Integration (Continued)	<ul style="list-style-type: none"> • Lessons: 5.4 to 5.5 • Homework: 5.4 to 5.5 • Class Discussion • Chapter 5 Test 2
3	Chapter 5 Integration (Continued)	<ul style="list-style-type: none"> • Lessons: 5.6 to 5.7 • Homework: 5.6 to 5.7 • Class Discussion • Chapter 5 Test 3
4	Chapter 6 Applications of Integration	<ul style="list-style-type: none"> • Lessons: 6.1 to 6.2 • Homework: 6.1 to 6.2 • Class Discussion • Chapter 6 Test 1 • Midterm Exam
5	Chapter 6 Applications of Integration (Continued)	<ul style="list-style-type: none"> • Lessons: 6.3 to 6.4 • Homework: 6.3 to 6.4 • Class Discussion • Chapter 6 Test 2
6	Chapter 6 Applications of Integration (Continued)	<ul style="list-style-type: none"> • Lessons: 6.5 to 6.6 • Homework: 6.5 to 6.6 • Class Discussion • Chapter 6 Test 3



7	Chapter 8 Differential Equations	<ul style="list-style-type: none">• Lessons: 8.1 to 8.2• Homework: 8.1 to 8.2• Class Discussion• Chapter 8 Test 1
8	Chapter 8 Differential Equations (Continued)	<ul style="list-style-type: none">• Lessons: 8.3 to 8.4• Homework: 8.3 to 8.4• Class Discussion• Chapter 8 Test 2• Final Exam