

MA 410: AP Calculus Review
Alabama School of Math and Science

Spring 2016

Instructor: Sarah Brewer

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Course Web Site: brewermath.com (redirects to mathemartiste.com)

Office: S201

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Office Hours: MonWedThursFri 2:45-3:40 (8th per), Thurs 11-11:55, 3:45-4:40 (4th & 9th per) and by appointment

Course Description: This course will focus on preparation for the AP Calculus exam. Prerequisite: students who plan to take the AP Calculus AB exam should complete MA201 and MA202; students who plan to take the AP Calculus BC exam should complete the calculus sequence through MA203.

Texts:

Larson, Hostetler & Edwards. *Calculus*, Seventh Edition.

Course Outline:

Monday: Lecture; Homework assigned

Tuesday: Lecture

Thursday: Lab; Homework due

Friday: Test; Lab due

Grade Determination:

8 Tests – 100 pts. ea.

10 Labs – 20 pts. ea.

10 HWs – 10 pts. ea.

Homework: Assignments should be labeled neatly with your name, date, and problem numbers. Homework will be graded for accuracy. You are encouraged to consult the instructor for help, but you must write up your own final assignments. **Late homework will not be accepted.**

Tests will consist primarily of material covered since the prior test, but will also include some review questions. Each test will consist of approximately 15 AP-style multiple choice questions and 2-3 AP-style free-response questions.

Academic Integrity: Students and student work will be held to a very high standard in this course. If at any point I suspect that work you submit is not entirely your own, the matter will be brought to the disciplinary committee as per the Student Handbook Plagiarism policy. You will receive a zero for that assignment, and may be withdrawn from the course.

Make-up policy: Any tests missed due to unexcused absences will receive a grade of zero. Homework assigned during a student's absence must be turned in when the student returns to class. All assignments can be found in the course notes. Arrangements to make-up tests must be done BEFORE the test is missed. In case of unexpected illness, this can be done via email.

Note: make-up assignments will be much more difficult than the original.

Cell phone policy: Phones should be SILENT (not on vibrate) and away. I reserve the right to confiscate any phone that I deem a distraction. Use of cell phones during quizzes or tests will result in a grade of zero.

Attendance and Tardiness Policy: Three tardies count as one unexcused absence. A student with three unexcused absences may be assigned a grade of WF for the course. Students are responsible for acquiring any missed notes and assignments (as these are posted on the web, this should not be a problem).

Tentative Schedule

Week 1 – Feb 29-Mar 4 – Limits & Continuity

- Limits of Functions
- Asymptotic & Unbounded Behavior
- Continuity
- LABS 1 & 2

Week 2 – Mar 7-11 – The Derivative

- Concept of the Derivative
- Derivative at a Point
- Derivative as a Function
- Second Derivatives
- LABS 3 & 4

Week 3 – Mar 14-18 – Applications of Derivatives

- Optimization
- Extrema
- Concavity
- LABS 5 & 6

Week 4 – Mar 21-24 (Short Day) – Integration

- Interpretations and Properties of Definite Integrals
- Fundamental Theorem
- Riemann Sums & Trapezoidal Sums
- Techniques of Antidifferentiation
- Integration by Parts
- Improper Integrals
- LABS 7 & 8

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Week 5 – Apr 4-8 – Applications of Integrals

- Area & Volume
- Motion along a line
- LABS 9 & 10

Week 6 – Apr 11-15 – Differential Equations

- Separation of Variables
- Euler's Method
- Logistic Differential Equations
- LABS 11 & 12

Week 7 – Apr 18-22 – Parametric, Vector, & Polar Functions

- LABS 13 & 14

Week 8 – Apr 25-29 – Series, Convergence & Divergence Tests

- Geometric series
- Harmonic Series
- Alternating Series
- Integral Test, p-series
- Ratio Test
- Comparison Test
- Taylor Series
- Maclaurin Series
- Power Series
- Radius of Convergence
- LAB 15

Week 9 – May 2-6

- AP Exam – May 5

Week 10 – May 9-13

- Labs/Re-test

Week 11 – May 16-20 (Short Day)

- Labs/Re-test

Exams – May 23-26