Mrs. Harris

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AP Calculus BC

2 Credits
Web page:
http://www.wlhs.wlwv.k12.or.us/Page/3496

Mth Calculus 253

5 credits
Advanced College Credit Website:
http://depts.clackamas.edu/acc

Course Prerequisites
Teacher recommendation and completion of Calculus AB

Course Description
This course is the study of differential and integral calculus for functions represented by series and functions of 2 or more variables (surfaces). Topics covered will include limits, tangent lines/planes, definition of a derivative for a surface, volume under a surface, and derivative and integrals of vector valued functions.

Course Objectives
This course will foster an understanding of topics and applications of differentiation.

Student Learning Outcomes

- determine whether a sequence converges or diverges
- determine whether a series converges or diverges
- recognize infinite geometric series and if convergent, find their sums
- use specific tests (Integral Test, Comparison Tests, Alternating Series Test, Ratio Test) to determine whether a given series converges or diverges.
- represent a given function using a power series
- find the Taylor expansion for a function and use a Taylor polynomial to approximate a function value, an integral, or a limit
- represent functions using polar coordinates
- integrate a function defined in polar coordinates and use the integral in applications
- compute double integrals of a function in both Cartesian and polar coordinates over rectangles and arbitrary domains in $\Re^2$
- compute triple integrals of a function in Cartesian, cylindrical, and spherical coordinates over boxes and arbitrary domains in $\Re^3$

Required Materials

- Pencils, I will **NOT** accept any work done in pen.
- Graphing calculator is required for calculus. TI-83/TI-84 is best. TI-86 and TI-89 calculators will not be allowed on any test or quiz. They are however acceptable on the AP exam.
- Textbook, James Stewart, Calculus: Concepts and Contexts, Fourth Edition. I will check out books at the beginning of the year, please take care of them.

Classroom Rules and Expectations

- Be in your seat and ready to work when class starts. This means materials are out, pencils are sharpened, restroom breaks are taken, and socializing is done.
- Bring all materials (books, completed assignments, calculators, and pencils) to class each day.
- If quiet time is given, you are to work on your MATH assignment.
- Keep noise levels down when working in pairs or groups
- Cheating is not tolerated. If you are caught cheating, you will get a zero and your parents will be notified. This includes if you let someone "borrow" the homework you have already completed
- Absolutely no electronic devices are allowed in class.

Assessments and Grading Policies

Tests	40%
Quiz	20%
Homework	20%
Final Exam	20%

- If you have an excused absence you will be able to make up the test in a timely manner. There will be **NO TEST RETAKES**. Missing a review day does **not** postpone a chapter test.
- If homework is not done when you enter the class it is considered late. Late work will be accepted for half credit before you take the chapter test.
- Work must be neat and complete for credit.
- Also homework scores are based on effort, all homework is worth 5 points. Full credit will only be given if all problems are attempted, not completing even one problem will result in only partial credit.
- If you are absent due to illness or family emergency you have one day to make-up the assignment after the one day the assignment is considered late and you will earn only half credit.
- Pre-arranged absences. If you will be out of class (this includes for all field trips, school events, and sporting events) you will be held accountable for the work due. For instance if you leave prior to my class and return after my class for a field trip it is your responsibility to come turn in homework and get your current assignment from me or a classmate. If you do not check that day's assignment on the day it is due it become late work and will be treated accordingly. If you do not have the assignment prepared for the next day upon your return it also becomes late work.
- Because this class is a dual credit class, earning high school and college credit, you are held to student conduct policies for the high school and Clackamas Community College. Please refer to the HS Student Handbook and the College Handbook http://www.clackamas.edu/documents/handbook.pdf

Grading Scale

A	90 and above
B	80.0-89.9
C	70.0-79.9
D	60.0-69.9
F	0-59.9

ACC Grading

The same grading scale and policies do apply to the Advanced College Credit. However, the semester grades do not directly transfer to college grades. The Mth 253 grade is calculated based on chapters 8, Appendix H, and Chapter 12.

Advanced Placement Exam

- There is a fee of _____ dollars for the AP Calculus BC Exam.
- Test Format:
  Section I: Multiple Choice
  Part A: no calculator, 30 questions, 60 minutes
  Part B: calculator, 15 questions, 45 minutes

  Section II: Free Response
  Part A: calculator, 2 questions, 30 minutes
  Part B: no calculator, 4 questions, 60 minutes

- Each section is 50% of the overall score.
- The test date is

Day:	Sections and topics/themes covered:
1	Derive the Quadratic Formula
2	Go Over Summer Packet
3	Trigonometry Review
4	Quiz
5	H.1 Curves in Polar Coordinates
6	H.2 Areas and Lengths in Polar Coordinates
7	H.2 Areas and Lengths in Polar Coordinates
8	Parametric Derivatives
9	Review
10	Worksheet
11	Quiz
12	Derivative Review
13	More l'Hopital
14	Derivative Application Review
15	Integration Review
16	Integration Review 2

17 Integration Application Review
18 Integration Application Review
19 Quiz
20 7.2 Slope Fields and Euler's Method
21 7.3 Separable Equations
22 7.3 Sep. and Homogeneous Equations
23 7.4 Exponential Growth and Decay
24 7.5 The Logistic Equation
25 Chapter 7 review
26 Chapter 7 test
27 8.1 Sequences
28 8.1 Sequences
29 8.2 Series
30 8.2 Series
31 Quiz 8.1-8.2
32 8.3 The Integral and Comparison Test
33 8.3 The Integral and Comparison Test
34 Quiz 8.3
35 8.1-8.3 Review
36 8.4 Other Convergence Tests
37 8.4 Other Convergence Tests
38 Quiz over 8.4
39 Review 8.1-8.4
40 Test over 8.1-8.4
41 8.5 Infinite Sequences and Series
42 8.6 Representations of Functions as Power Series
43 8.6 Representations of Functions as Power Series
44 8.6 Representation of Functions as Power Series
45 8.7 Taylor and Maclaurin Series
46 8.7 Taylor and Maclaurin Series
47 8.7 Taylor and Maclaurin Series
48 Review over 8.5-8.7
49 Test over 8.5-8.7
50 9.1 Three-Dimensional Coordinate Systems
51 9.2 Vectors
52 9.3/9.4 Dot Product and Cross Product
53 9.5 Equations of Lines and Planes
54 9.5 Equations of Lines and Planes
55 9.6 Functions and Surfaces
56 9.7 Cylindrical and Spherical Coordinates
57 Quiz over 9.1-9.7
58 Chapter 9 review
59 Chapter 9 test
60 Final Exam
61 10.1 Vector Functions and Space Curves
62 10.2 Derivatives and Integrals of Vector Functions
63 10.3 Arc Length and Curvature

64	10.4 Motion in Sapce
65	10.5 Parametric Surfaces
66	11.1/11.2 Functions of Several Variables/ Limits and Continuity
67	11.3 Partial Derivatives
68	11.3 Partial Derivatives
69	11.4 Tangent Planes and Linear Approximations
70	11.5 The Chain Rule
71	11.6 Directional Derivatives and the Gradient Vector
72	11.7 Maximum and Minimum Values
73	11.7 Maximum and Minimum Values
74	11.8 Lagrange Multipliers
75	11.8 Lagrange Multipliers
76	Chapter 11 Review
77	Chapter 11 Test
78	12.1 Double Integrals over Rectangles
79	12.2 Iterated Integrals
80	12.3 Double Integrals over General Regions
81	Quiz over 12.1-12.3
82	12.4 Double Integrals in Polar Coordinates
83	12.5 Applications of Double Integrals
84	12.6 Surface Area
85	12.7 Triple Integrals
86	Chapter 12 Review
87	Chapter 12 Review
88	Chapter 12 Test