

**MATH 181, Analytic Geometry and Calculus I, Autumn, 2010**  
**Walla Walla University**

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**BULLETIN DESCRIPTION:** Study of functions, limits, continuity, derivatives, definite integrals, and the Fundamental Theorem of Calculus. Credit will not be allowed for both MATH 123 and MATH 181. Prerequisite: MATH 117 or 122 or a satisfactory score on a departmental placement examination. A graphing calculator is required (see below).

**INSTRUCTOR:** Dr. Kenneth L. Wiggins, 338 KRH, 527-2088, ken.wiggins@wallawalla.edu

**OFFICE HOURS:** 2 TuWTh, 3 M, 11 F, Other Office hours by appointment

**OBJECTIVES:** After finishing this course, the student should be able to organize and effectively communicate ideas involving:

- limits, continuity, derivatives, differentiation rules, applications of derivatives
- max-min problems, related rates, Rolles Theorem, The Mean Value Theorem.
- antiderivatives, definite integrals, The Fundamental Theorem of Calculus

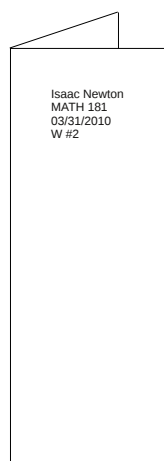
**TEXT:** *Calculus*, 9th ed., Larson & Edwards, 2010, Brooks/Cole, ISBN 978-0-547-16702-2

**GRAPHING UTILITY:** A TI-89 or equivalent calculator is required for homework and projects, but it cannot be used for tests.

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**ASSESSMENT:** All assessment will be based on both correctness and quality, including the quality of your presentation.

Category		Weight	
Homework & quizzes		20%	
Three tests		50%	
Final exam		30%	
Grade	Percent	Grade	Percent
A	91-100%	C	70-74%
A-	89-90%	C-	65-69%
B+	86-88%	D+	62-64%
B	83-85%	D	58-61%
B-	80-82%	D	55-57%
C+	75-70%	F	0-54%





**HOMEWORK:** The surest way to succeed in MATH 181 is to study each day. To aid you in your study, homework problems will be assigned daily. Most of this homework will be done on the computer, but you will hand in a weekly assignment that you will do on paper. Be sure to show all work neatly and indicate your answers clearly. The weekly assignments are given specifically for you to practice clear and precise presentations. Please fold your paper homework lengthwise and label it as illustrated in the diagram above.

**QUIZZES:** Occasionally quizzes may be given over the lectures and homework.

**TESTS:** Three 50-minute examinations will be given during the quarter. These will cover the lectures and the homework, and you will take these tests without calculators.

**FINAL EXAMINATION:** This test is scheduled for 10-11:50, Tuesday, December 14. Attendance is required, so make your travel plans early with this appointment in mind.

**CLASS ATTENDANCE:** Students are expected to attend all classes and to remain in their seats for the entire class period. In addition, students are expected to give their full attention to the class discussions, and to be courteous, respectful, and supportive of the learning environment. Cell phones, computers, personal organizers, and all other electronic devices are not to be used by students during class. Modifications to the homework assignments or test schedule may be announced in class.

**DISABILITIES:** If you have a physical and/or learning disability and require accommodations, please contact your instructor or the Special Services office at 527-2366. This syllabus is available in alternative print formats upon request. Please ask your instructor.

**SPECIAL CONSIDERATION FOR EXTRA EFFORT:** Your lowest test grade will be dropped and replaced with your final examination grade if you meet the following conditions: You must

- Be present, on time, and attentive for at least 37 or the 39 scheduled class sessions
- Turn in at least 95% of the homework on time.
- Make a higher grade on the final examination than you did on your lowest test.

**ACADEMIC INTEGRITY:** Some collaboration on homework is allowed, but the work you submit for grading must be your own. Any type of cheating on a test or examination, including but not limited to copying another student's work or using unauthorized notes or electronic equipment, will result in a zero grade for the test or a failing grade for the

quarter and possibly further disciplinary action taken by the Associate Vice President for Academic Administration.

## TOPICS BY WEEK:

### Week 1

- Calculator tips, A Preview of Calculus
- Introduction to Logic
- Finding Limits Graphically and Numerically

### Week 2

- Evaluating Limits Analytically
- Continuity and One-Sided Limits
- Infinite Limits
- The Derivative and the Tangent Line Problem

### Week 3

- Basic Differentiation Rules and Rates of Change
- Catch Up/Review
- Test #1
- Product and Quotient rules

### Week 4

- The Chain Rule
- Implicit Differentiation
- An Engineering Problem
- Related Rates

### Week 5

- Extrema on an Interval
- Rolles Theorem and the Mean Value Theorem

- Increasing and Decreasing Functions and the first Derivative Test

### Week 6

- Catch Up/Review
- Test #2
- Concavity and the Second Derivative Test

### Week 7

- Limits at Infinity
- A Summary of Curve Sketching
- Optimization Problems
- A missionary, crocodiles, tigers, and calculus

### Week 8

- Newtons Method
- Differentials
- Antiderivatives and Indefinite Integration

### Week 9

- Catch Up/Review
- Test #3
- Area

### Week 10

- Riemann Sums and Definite Integrals
- The Fundamental Theorem of Calculus
- Catch Up/Review

### Week 11

- Final Examination