

MATH 281, Analytic Geometry and Calculus II, 4 credits, Autumn, 2011 Walla Walla University

BULLETIN DESCRIPTION: Study of indefinite integrals, calculus of inverse functions, and techniques and applications of integration. Prerequisite: MATH 181. A graphing calculator is required. For specific recommendations see the Department of Mathematics World Wide Web site (<http://math.wallawalla.edu>). See *GRAPHING UTILITY* below.

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

OFFICE HOURS: 2 TuWTh, 3 M, 12 F, Other Office hours by appointment

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

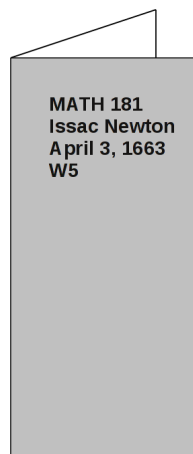
- integrals and Riemann sums.
- techniques of integration
- applications of integration
- logarithmic, hyperbolic, inverse trigonometric, and exponential functions

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

GRAPHING UTILITY: The primary software for the class is Maple, which is freely available in the computer labs. This software can be used in lieu of a calculator. If you wish to have your own copy of Maple I can arrange for you to do that for \$75.

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

Category		Weight	
Homework & quizzes		25%	
Three tests		45%	
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+	75-79%	F	0-54%





HOMEWORK: The surest way to succeed in MATH 281 is to study each day. To aid you in your study, homework problems will be assigned each day. Most of this homework will be done on the computer, but you will hand in a weekly written assignment. 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. Your written homework will be due Friday mornings at the beginning of class.

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 AM, Monday, December 12. Attendance is required, so make your travel plans early with this appointment in mind.

CLASS ATTENDANCE: Students are expected to attend all classes. 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

- Integration by Substitution
- Numerical Integration
- The Natural Logarithmic Function: Differentiation

Week 2

- The Natural Logarithmic Function: Integration
- Inverse Functions
- Exponential Functions: Differentiation and Integration
- Bases Other Than e and Applications

Week 3

- Inverse Trigonometric Functions: Differentiation
- Catch Up/Review
- Test #1
- Inverse Trigonometric Functions: Integration

Week 4

- Hyperbolic Functions
- Slope Fields and Euler's Method
- Differential Equations: Growth and Decay

Week 5

- Separation of Variables and the Logistic Equation
- Area of a Region Between Two Curves
- Volume: The Disk Method

Week 6

- Volume: The Shell Method
- Catch Up/Review

- Test #2
- Arc Length and Surfaces of Revolution

Week 7

- Work
- Moments, Centers of Mass, and Centroids
- Fluid Pressure and Fluid Force
- Basic Integration Rules

Week 8

- Integration by Parts
- Trigonometric Integrals
- Trigonometric Substitution
- Partial Fractions

Week 9

- Integration by Tables and Other Integration Techniques
- Catch Up/Review
- Test #3

Week 10

- Indeterminate Forms and L'Hôpital's Rule
- Improper Integrals
- Catch Up/Review

Week 11

- Final Examination