

U3600-215: Calculus II

Course Format: Online

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Course credits: 4

Prerequisites: Completion of U3600-114 Calculus I with a C or better or the equivalent.

Course Level: Intermediate; Appropriate for second-year or higher college students.

Course Description: This course will cover techniques of integration, applications of integration and an introduction to differential equations, sequences, and series.

Required Course Materials

- Rogawski, J. & Adams, C. (2015) Calculus, Early Transcendentals (3rd ed.). W. H. Freeman. (ISBN-13: 978-1464114885; ISBN-10: 1464114889).

Hardware Requirements: You will need a webcam, speakers, and a microphone. You will complete your exams through an online proctor, requiring all three components.

You will also need to submit written work while completing your tests and exams. You will need a scanner or a camera to upload your written.

Course Learning Objectives

After completing this course, the student will be able to:

- Analyze and solve calculus problems related to techniques of integration, solving various applied problems involving integrals.
- Analyze and solve basic problems in differential equations of first order using analytical, geometrical, and introductory numerical methods.
- Analyze convergence and divergence of infinite series and power series, and compute Taylor series for elementary functions.

Course Overview

Topic #	Topic	Evaluated Activities
Unit 1: Techniques of Integration		
7.1	Integration by Parts (Ch7.1)	WeBWorK, Homework Video, Quiz
7.2	Trigonometric Integrals (Ch7.2)	WeBWorK, Homework Video, Quiz
7.3	Trigonometric Substitution (Ch7.3)	WeBWorK, Homework Video, Quiz
7.4	Integrals Involving Hyperbolic Functions (Ch7.4)	WeBWorK, Homework Video, Quiz
7.5	The Method of Partial Fractions (Ch7.5)	WeBWorK, Homework Video, Quiz
7.6	Strategies for Integration (Ch7.6)	WeBWorK, Homework Video, Quiz
7.7	Improper Integrals (Ch7.7)	WeBWorK, Homework Video, Quiz
7.9	Numerical Integration (Ch7.9)	WeBWorK, Homework Video, Quiz
Test 1 - Multiple Choice; Test 1 - Open-ended Problems		

Topic #	Topic	Evaluated Activities
Unit 2: Applications of the Integral and differential equations		
7.8	Probability and Integration (Ch7.8)	WeBWorK, Homework Video, Quiz
8.1	Arc Length and Surface Area (Ch8.1)	WeBWorK, Homework Video, Quiz
8.3	Center of Mass (Ch8.3)	WeBWorK, Homework Video, Quiz
8.4	Taylor Polynomials (Ch8.4)	WeBWorK, Homework Video, Quiz
9.1	Solving Differential Equations (Ch9.1)	WeBWorK, Homework Video, Quiz
9.2	Models Involving $y' = k(y - b)$ (Ch9.2)	WeBWorK, Homework Video, Quiz
9.3	Graphical and Numerical Methods (Ch9.3)	WeBWorK, Homework Video, Quiz
9.5	First-Order Linear equations (Ch9.5)	WeBWorK, Homework Video, Quiz
Test 2 - Multiple Choice; Test 2 - Open-ended Problems		
Unit 3: Infinite Series		
10.1	Sequences (Ch10.1)	WeBWorK, Homework Video, Quiz
10.2	Summing and Infinite Series (Ch10.2)	WeBWorK, Homework Video, Quiz
10.3	Convergence of Series with Positive Terms (Ch10.3)	WeBWorK, Homework Video, Quiz
10.4	Absolute and Conditional Convergence (Ch10.4)	WeBWorK, Homework Video, Quiz
10.5	Ratio and Root Tests, Strategies for Choosing Tests (Ch10.5)	WeBWorK, Homework Video, Quiz
10.6	Power Series (Ch10.6)	WeBWorK, Homework Video, Quiz
10.7	Taylor Series (Ch10.7)	WeBWorK, Homework Video, Quiz
Test 3 - Multiple Choice; Test 3 - Open-ended Problems		
Final Exam: Open-ended Problems		

Evaluation Methods

Your final grade will be based on your performance on the following:

- 1) WeBWorK Homework (10%).
- 2) Video Quizzes (5%)
- 3) Test 1 (Proctored) (20%)
- 4) Test 2 (Proctored) (20%)
- 5) Test 3 (Proctored) (20%)
- 6) Final Exam (Proctored) (25%)

WeBWorK Homework (10%)

Homework is completed using WeBWorK. You'll find the links to the WeBWorK assignments within the individual topic sections in the online course. You may rework the homework problems as many times as you need to.

Video Quizzes (5%)

Video quizzes will appear within the individual topic sections in the online course. Be sure to answer these questions, which will include "have you watched the video" type questions.

Test 1, 2, 3 (60% total; 20% each)

Each proctored test consists of 10 multiple-choice questions, and 4 open-ended questions. You'll have 1 hour to complete the test. You may use a calculator and note pages to record your work. No notecards, other scratch paper, phones, or Internet searching is permitted. You are allowed to take a proctored second attempt on the multiple-

choice questions only. You'll have 30 minutes to complete a second attempt.

Final Exam (25%)

The Final Exam consists of 12 open-ended questions. You'll have 2 hours to complete the exam. You may use a calculator, Final Exam notecard, and note pages to record your work. No scratch paper, phones, or Internet searching is permitted.

Test & Exam Method: Online with Proctoring

This course requires all students to complete tests and the Final Exam online with a proctoring service. Students receive one attempt on the Final Exam.

Grading Scale

The following grading scale is used to evaluate all course requirements and determine your final grade. Grades will always be rounded up to the nearest tenth.

A = 93–100	B = 83–87.9	C = 70–77.9	D = 60–69.9
AB = 88–92.9	BC = 78–82.9		F = Below 60

Pass/Fail Option

Students who enroll in an Independent Learning course under the pass/fail option will receive a final grade of S in place of a final grade equivalent to an A, AB, B, BC, or C and a final grade of U in place of a final grade equivalent to a D or F.