

Calculus II

Time: TR 12:30 – 1:45, W 1 – 2:50

Room: ACR 108

Instructor: Eric Funasaki

Office: ACR 109C

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Office hours:

MWF 10 – 10:50, TR 8:30 – 9:15, TR 11 – 12:15, or by appointment.

Textbook:

Calculus: Concepts & Contexts, 4th edition, by James Stewart.

Course Description:

Topics include the definite integral and its applications, techniques of integration, improper integrals, Taylor's formula, and infinite series.

Prerequisite:

Math 2413 Calculus I

Mathematics Program Learning Objectives:

The student should be able to:

1. Apply knowledge of basic mathematics principles;
2. Identify and provide valid proofs or solutions for theorems or problems; and
3. Recognize and dispute invalid mathematical statements using counterexamples.

Course Objectives:

The student will be able to:

1. Evaluate definite integrals and improper integrals.
2. Evaluate indefinite integrals using methods such as substitution and parts.
3. Use integration to find area, volume, arc length, average value, and work.
4. Determine if a sequence converges or diverges.
5. Determine if a series converges or diverges.
6. Represent functions as power series, in particular as Taylor and Maclaurin Series.

EC-6 Core Teacher Competencies:

1. Competency 013 (Mathematics Instruction): The teacher understands how students learn mathematical skills and uses that knowledge to plan, organize, and implement instruction and assess learning.

2. Competency 014 (Number Concepts and Operation): The teacher understands concepts related to numbers, operations and algorithms, and the properties of numbers.
3. Competency 015 (Patterns and Algebra): The teacher understands concepts related to patterns, relations, functions, and algebraic reasoning.
4. Competency 016 (Geometry and Measurement): The teacher understands concepts related to principles of geometry and measurement.
5. Competency 017 (Probability and Statistics): The teacher understands concepts related to probability and statistics and their applications.
6. Competency 018 (Mathematical Processes): The teacher understands mathematical processes and knows how to reason mathematically, solve mathematical problems, and make mathematical connections within and outside of mathematics.

Course Assessment:

Your grade will be based on the following components:

- 8% In-class problems and participation
- 20% Homework assignments and quizzes
- 48% Exams
- 24% Comprehensive Final Exam

The grading scale will be:

90 – 100 A 80 – 89 B 70 – 79 C 60 – 69 D 0 – 59 F

Course Schedule (tentative):

Week 1

- 1/19 T 4.8 Antiderivatives
- 1/20 W 5.1 Areas and Distances
- 1/21 R 5.1 Areas and Distances, 5.2 The Definite Integral

Week 2

- 1/26 T 5.2 The Definite Integral
- 1/27 W 5.1 Areas and Distances, 5.2 The Definite Integral
- 1/28 R 5.3 Evaluating Definite Integrals

Week 3

- 2/2 T 5.4 The Fundamental Theorem of Calculus
- 2/3 W 5.3 Evaluating Definite Integrals, The Fundamental Theorem of Calculus
- 2/4 R 5.5 The Substitution Rule

Week 4

- 2/9 T 5.6 Integration by Parts
- 2/10 W 5.5 The Substitution Rule, 5.6 Integration by Parts
- 2/11 R 5.7 Additional Techniques of Integration

Week 5

- 2/16 T 5.10 Improper Integrals
- 2/17 W 5.7 Additional Techniques of Integration, 5.10 Improper Integrals
- 2/18 R Review for Exam 1

Week 6

- 2/23 T Review for Exam 1

2/24	W	Exam 1
2/25	R	6.1 More About Areas
<u>Week 7</u>		
3/1	T	6.2 Volumes
3/2	W	6.1 More About Areas, 6.2 Volumes
3/3	R	6.3 Volumes by Cylindrical Shells
<u>Week 8</u>		
3/8	T	6.4 Arc Length
3/9	W	6.3 Volumes by Cylindrical Shells, 6.4 Arc Length
3/10	R	6.5 Average Value of a Function
<u>Week 9</u>		
3/15	T	Spring Break (no class)
3/16	W	Spring Break (no class)
3/17	R	Spring Break (no class)
<u>Week 10</u>		
3/22	T	6.6 Applications to Physics and Engineering
3/23	W	6.5 Average Value of a Function, 6.6 Applications to Physics and Engineering
3/24	R	Review for Exam 2
<u>Week 11</u>		
3/29	T	Review for Exam 2
3/30	W	Exam 2
3/31	R	8.1 Sequences
<u>Week 12</u>		
4/5	T	8.2 Series
4/6	W	8.1 Sequences, 8.2 Series
4/7	R	8.3 The Integral and Comparison Tests
<u>Week 13</u>		
4/12	T	8.4 Other Convergence Tests
4/13	W	8.3 The Integral and Comparison Tests, 8.4 Other Convergence Tests
4/14	R	8.5 Power Series
<u>Week 14</u>		
4/19	T	8.6 Representations of Functions as Power Series
4/20	W	8.5 Power Series, 8.6 Representations of Functions as Power Series
4/21	R	8.7 Taylor and Maclaurin Series
<u>Week 15</u>		
4/26	T	8.8 Application of Taylor Polynomials
4/27	W	8.7 Taylor and Maclaurin Series, 8.8 Application of Taylor Polynomials
4/28	R	Review for Exam 3
<u>Week 16</u>		
5/3	T	Exam 3
5/4	W	Review for Final Exam
5/5	R	Dead Day (no class)
<u>Week 17</u>		
5/10	T	Finals week (no class)

5/12 W Finals week (no class)
5/11 R Final Exam (10:15 am – 12:15 pm)

Attendance:

Role will be taken. You are responsible for all material covered in class as well as any assignments and announcements that are made. If you miss an assignment, exam, or quiz you will receive a grade of zero unless I have been notified in advance.

Sul Ross State University policy is to drop a student with a grade of W or F when 9 hours of class are missed. For this course that is when you miss **6** classes.

Cheating:

Cheating will not be tolerated. Anyone caught cheating will receive a grade of zero on that assignment. This includes homework assignments where the student who copied another student's work and the student who allowed their work to be copied will both receive a grade of zero.

Cell Phones and Other Electronic Devices:

Your cell phone must be **off** while you are in class. You may not read or send text messages while class is in session. If there is an unusual situation where you simply must be able to read and send a message without delay, please place your phone in vibrate mode and leave the room before reading and responding. No other electronic devices may be used during class without the permission of the instructor.

ADA Statement:

Sul Ross State University is committed to equal access in compliance with the Americans With Disabilities Act of 1973. It is the student's responsibility to initiate a request for accessibility services. Students seeking accessibility services must contact Mary Schwartze in Counseling and Accessibility Services, Ferguson Hall, Room 112. The mailing address is P.O. Box C-122, Sul Ross State University, Alpine, TX 79832. Telephone: 432-837-8203. E-mail: mschwartz@sulross.edu.

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