

Course Syllabus: Math Analysis II

MATH 5B-50826

Instructor: Mr. Steven Zook

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Reedley College

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Office Hours: TWTh 10am – 11am

Meeting Room: FEM 4

Meeting Days: MTWTh

Meeting Time: 12:00 pm – 12:50 pm

Course Description: This class investigates the applications of integration, many techniques of integration, improper integrals, parametric equations, polar coordinates and functions. Further study involves conic sections, exponential growth/decay models, infinite series including Maclaurin and Taylor Series.

Course Prerequisites: MATH 5A or equivalent

Course Advisories: English 125 and 126

Student Learning Outcomes:

Upon completion of this course, students will be able to:

1. Evaluate definite integrals using the fundamental theorem of calculus and relate definite integrals to areas and Riemann sums.
2. Apply the use of integrals to problems involving volumes of solids, arc length, surface area, and other applications from science and/or engineering.
3. Find antiderivatives using a variety of techniques of integration.
4. Determine the convergence or divergence of infinite series by using appropriate tests and use infinite series to find polynomial representations of transcendental functions.
5. Analyze conic sections and mathematical relationships given in parametric and polar forms.

Objectives:

In the process of completing this course, students will:

1. Evaluate definite and indefinite integrals using a variety of integration formulas and techniques.
2. Apply integration to areas and volumes, and other applications such as work or length of a curve.
3. Evaluate improper integrals.
4. Apply convergence tests to sequences and series.
5. Represent functions as power series.
6. Graph, differentiate and integrate functions in polar and parametric form.

Required Text: Anton, Howard, Calculus – Early Transcendentals, 11th Edition, 2015. ISBN: 978-1-1188-8382-2

This text is required for reading, studying, and completing homework assignments.

Office Hours: I will be holding regular office hours. I want to be available to you if you need assistance outside of class. Please visit me during the scheduled times for drop-in questions. You may come unannounced during those times. If the scheduled office hours do not suit your schedule, you may arrange a time to meet me in my office. Please don't hesitate to take advantage of these since I want you to succeed – it's what I am here for!

Attendance: As a student, you are expected to attend all classes for the entire period. Please be on time and ready to start when class is scheduled to begin. I ask this out of respect for your classmates and me. **Eight (8) absences** may result in a drop from the course. If you decide to drop, it is your responsibility to drop the class officially through the Administration and Records office. In failing to do so, you run the risk of receiving a **grade of F**.

Drop Deadline: Friday, March 9

Assignments & Exams:

All **homework** assignments will be completed by hand on pencil and paper. Homework assignments will be due weekly on the due date **at the beginning of class** and will cover topics from the previous week. If you submit your homework late, there is a **20% penalty for each day** that the assignment is late. Homework that is more than one week late will not receive any credit.

Please submit homework that is organized and written neatly on graph paper with all necessary work written out completely – this is my expectation. Please write your full name on all pages and multiple pages must be stapled together. Additionally, remove any loose edges along the perforation if the pages are out of a spiral notebook. Lastly, please number the problems you complete.

There will be regular **quizzes** that will be completed in class. These will be announced at the end of the previous class period. Quizzes will always be given at the beginning of class and there are **no make-ups** allowed for late or absent students.

There will be **one project** this semester that will require work and intellectual investment beyond the minimum. The project will be aligned with the content we are working through in class at the time it is assigned. Details on these assignments will be available on Canvas. The project will be given two weeks before it is due. It will require the full time to complete adequately and no late assignments will be accepted.

There will be **three exams** (not including the final exam) during the semester and the dates they will be held are in the course calendar and they will cover the specified content. There will be **no make-up exams** allowed although it will be possible to schedule a time to take an exam early if it is prearranged.

The **comprehensive final exam** will be held during finals week. If it is to your benefit, the cumulative final exam score will replace your lowest exam score.

Assignment Categories and Weighting

<i>Assignment</i>	<i>Weighting</i>
Homework	20%
Quizzes	5%
Research Project	10%
Exams (3 @ 15% each)	45%
Final Exam (cumulative)	20%

Final Grades

<i>Letter Grade</i>	<i>Percent</i>
A	90-100
B	80-89
C	70-79
D	60-69
F	0-59

SPECIAL NEEDS REQUESTS: If you have a verified need for an academic accommodation or materials in alternate media (i.e., Braille, large print, electronic text, etc.) per the Americans with Disabilities Act (ADA) or Section 504 of the Rehabilitation Act, please contact me as soon as possible.

Please refer to the RC Catalog for the Policies on Academic Dishonesty, Cheating, and Plagiarism, pg. 44.

Course Outline and Schedule

- Week 1: Course Introduction
Begin Chapter 7: Principles of Integral Evaluation
- Week 2: No class Monday, Jan. 15
Homework 1 due on Thursday, Jan. 18
- Week 3: **Homework 2** due on Thursday, Jan. 25
- Week 4: **Homework 3** due on Thursday, Feb. 1
- Week 5: **Exam 1, Monday, Feb. 5 (Chapter 7)**
Begin Chapter 6: Applications of the Definite Integral in Geometry, Science, and Engineering
Homework 4 due on Thursday, Feb. 8

- Week 6: **Homework 5** due on Thursday, Feb. 15
- Week 7: No class Monday, Feb. 19
 Homework 6 due on Thursday, Feb. 22
- Week 8: **Homework 7** due on Thursday, Mar. 1
 Exam 2, Thursday, Mar. 1 (Chapter 6)
- Week 9: Begin Chapter 9: Infinite Series
 Homework 8 due on Thursday, Mar. 8
- Week 10: **Homework 9** due on Thursday, Mar. 15
- Week 11: **Homework 10** due on Thursday, Mar. 22
- Week 12: **Project** due on Tuesday, Apr. 3
 Homework 11 due on Thursday, Apr. 5
- Week 13: **Homework 12** due on Thursday, Apr. 12
 Exam 3, Thursday, Apr. 12 (Chapter 9)
- Week 14: Begin Chapter 8: Mathematical Modeling with Differential Equations
 Homework 13 due on Thursday, Apr. 19
- Week 15: **Homework 14** due on Thursday, Apr. 26
- Week 16: Begin Chapter 10: Parametric and Polar Curves; Conic Sections
 Homework 15 due on Thursday, May 3
- Week 17: Review on May 9 and 10
- Week 18: **Finals Week**