

MATH 202: Calculus II

CRN: 12345 — Fall 20XX

Instructor Information

Name: Mr. Harry Yang

Office: Mathematics Department

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Office Hours: Tuesday & Thursday 1:00 PM - 3:00 PM, or by appointment

Class Meeting Information

Meeting Times: Monday, Wednesday, Friday 10:00 AM - 11:15 AM

Location: Building A, Room 201

Course Dates: August 26 - December 15, 20XX

Course Description

MATH 202: Calculus II is a continuation of Calculus I that covers advanced integration techniques, applications of the integral, infinite series, and parametric equations. This course emphasizes conceptual understanding and practical applications of calculus principles. Students will develop problem-solving skills applicable to engineering, natural sciences, economics, and other quantitative fields.

Prerequisites

A grade of C or better in MATH 201 (Calculus I) or equivalent placement. Students should have solid proficiency in algebra, trigonometry, and differential calculus.

Course Objectives

After successful completion of this course, students will be able to...

- Master integration techniques including integration by parts, partial fractions, and trigonometric substitution
- Apply integral calculus to solve real-world problems in physics, engineering, and other disciplines
- Understand and work with infinite series, including convergence tests and power series
- Analyze parametric and polar coordinate systems
- Communicate mathematical solutions clearly with proper notation and justification
- Use technology effectively as a tool to explore and verify calculus concepts
- Develop critical thinking skills through mathematical problem-solving

Required Materials

You will need the following:

- **Textbook:** Calculus: Early Transcendentals (12th Edition) by Stewart, OR equivalent community college calculus textbook

Homework and Study Expectations

Mathematics is learned by doing! You should expect 8-12 hours of work per week outside of class, including note-taking, homework completion, and exam preparation.

Homework Guidelines:

- Assignments will be posted on the course LMS each week
- Expect 2-3 problem sets per week with varying difficulty levels
- Work must be clearly shown; answers without justification receive no credit
- Homework is graded on completion and accuracy (4 points: 2 for timeliness, 2 for correctness of selected problems)
- Late submissions accepted with 10% penalty per day, up to 3 days late

Assessment and Grading

Student performance will be evaluated through:

- **Homework/Problem Sets** (25%): Regular practice problems graded for completion and accuracy
- **Quizzes** (20%): Short assessments (15-20 minutes) to check understanding of recent material
- **Midterm Exam** (25%): Comprehensive exam covering Units 1-3
- **Final Exam** (30%): Comprehensive exam covering all course material

All exams are closed-note and must be completed during scheduled times. Makeup exams require prior communication and valid documentation.

Grade Scale

Grades are earned based on your demonstrated mastery of course material:

Letter Grade	Percentage
A	90-100%
B	80-89%
C	70-79%
D	60-69%
F	Below 60%

A grade of C or better is typically required to move forward to Calculus III or other advanced mathematics courses. Check your program requirements.

Academic Integrity and AI Policy

Academic integrity is fundamental to your education and development as a critical thinker. Cheating—including copying homework, plagiarism, or unauthorized use of solution manuals—undermines your learning and devalues the work of honest students.

Policy on AI Tools: AI tools (such as ChatGPT) may be used as a **learning aid**, similar to a tutor or textbook. You may use these tools to:

- Generate similar practice problems
- Understand steps in a solution process
- Check your work and explain discrepancies

You must NOT:

- Submit AI-generated solutions as your own work
- Copy answers directly without understanding
- Use AI during exams or quizzes

Getting Help

Be proactive about your success! If you struggle with any concepts, multiple resources are available:

1. **Instructor Office Hours:** My primary responsibility is your success. Email or visit during office hours.
2. **Math Tutoring Center:** Free tutoring available in Building B, Room 105. Hours posted on college website.
3. **Online Resources (Free):**
 - Paul's Online Math Notes (detailed explanations and examples)
 - YouTube channels: The Organic Chemistry Tutor, 3Blue1Brown's Essence of Calculus (conceptual visualizations)
4. **Study Groups:** Form a study group with classmates for peer learning

Tips for Success in Calculus II

To thrive in this course and future mathematics courses:

- **Attend every class.** Missing even one class puts you at a disadvantage.
- **Do not procrastinate.** Start homework early and ask questions before the deadline.
- **Master one concept at a time.** Don't move forward until you understand the foundations.
- **Ask questions!** There are no silly questions in mathematics.

- **Form a study group.** Working with peers helps you understand material deeply and reinforces your own knowledge.
- **Practice, practice, practice!** Reading notes is passive; doing problems is active learning. Work through new problems carefully.
- **Check your work.** When finished with a problem, verify your answer. If wrong, examine what misunderstanding occurred and how to avoid it in the future. If correct, think about whether there was a faster method and whether your solution was clear and easy to follow.
- **Connect concepts.** Think about how new topics relate to previous material and to real-world applications.

Course Topics and Schedule

The following is an overview of major topics covered. A detailed week-by-week schedule will be provided on the course LMS.

- **Integration Techniques**
Integration by parts, trigonometric integrals, trigonometric substitution, partial fraction decomposition
- **Applications of Integration**
Area between curves, volumes of solids (disk/washer/shell methods), arc length, surface area, work and force
- **Differential Equations**
Separable differential equations, exponential growth/decay, slope fields, Euler's method
- **Infinite Series**
Sequences and series, convergence tests, power series, Taylor and Maclaurin series, applications
- **Parametric and Polar Coordinates**
Parametric equations and calculus, polar coordinates, calculus in polar form

Accessibility and Support Services

If you have disabilities or require academic accommodations, contact the Disability Services Office in Student Services. I am committed to creating an accessible learning environment. Please communicate with me early in the semester.

Mathematics is a powerful tool for understanding the world. With dedication and effort, you can master Calculus II and build confidence in your mathematical abilities. Let's have a great semester!