Math 173 Learning Outcomes

This course introduces students to the interpretations, techniques and applications of integration.

At the end of the Math 173 course students will be able to …

1. <u>Compute the distance</u> given information about velocity;
2. <u>Write (not necessarily compute) a definite integral</u> as a limit of Riemann Sums;
3. <u>Use the Fundamental Theorem of Calculus</u> to evaluate:
   a. definite integrals;
   b. an area (accumulation) function;
4. <u>Compute antiderivatives</u> corresponding to basic differentiation formulas;
5. <u>Use integration techniques</u> such as substitution, parts, partial fractions and trig substitution to find indefinite and definite integrals;
6. <u>Compute improper integrals;</u>
   a. Set up integrals that represent quantities, such as,
   b. Length of a curve;
   c. Volume and/or the surface area of a solid of revolution;
   d. Center of mass of a one-and/or two-dimensional object;
   e. Work to complete a task.

In addition, in this class you will learn…

- <u>Apply appropriate technology to solve problems;</u>
  - Be able to use a graphing calculator to intelligently extract information regarding functions is critical.
- <u>Working cooperatively with others;</u>
- <u>Problem solving skills,</u>
  - Describe the methods used to approach a problem;
  - Read and understand complex mathematical problems;
  - Model phenomena mathematically;
- <u>How to express solutions in written and oral form.</u>
  - How to "speak math", and
  - How to use logic to justify mathematical ideas,

You will be successful in this course if you….

- Are self-motivated,

- Willing to work hard,

- Look for alternate ways of solving the same problem,

- Participate actively in group-work and class discussions,

- Ask questions, and

- Believe in yourself and your ability to learn and grow.

General Course Information

Instructor: *email* *office* *office phone*
Dr. Brandy Wiegers wiegersb@cwu.edu Bouillon Hall 107A 509-963-2125

The best way to contact the instructor is at office hours or via email. Expect a 12-24 hour delay in response. If you haven't received a response within 24 hours of the original email please contact the professor again.

Class Times: MTWThF 11:00-11:50 am, **Location:** Hertz Hall 118

Office Hours: Monday, 3:30-4:30pm
         Wednesday, 9:00-10:00am, 3:30-4:30pm
         Friday, 9:00-10:00am, 3:30-4:30pm
         Location: Bouillon Hall 107A
    Additional office hours are available via appointment,
    please email the instructor to schedule these meetings.

Required Course Materials:
 Textbook: *Gleason, McCallum, et al., Calculus, Hughes-Hallett.*
This course will cover material from chapters 5, 6, 7, and 8 of the text. You should read the book. The examples in the text will supplement those given in class and the discussion and examples given in the text will provide reinforcement for material presented in class.

Graphing Device: *Some form of graphing calculator or computer graphing device.* **NOTE: In this course you will learn methods for doing things by hand and will have to do them by hand on exams. Graphing calculators will not be used on exam!**

Online Homework: http://webwork.math.cwu.edu/webwork2/Math173Wiegers/
Please email the instructor (wiegersb@cwu.edu) if there is any issues with the online homework website.

Please see the Canvas suggestions for using webworks. Specifically be aware:
- The assignment due date is based on server time. This time might be 5 mins earlier than your clock. Do work early.
- Don't expect an email response to homework inquiries within 12 hours of the due date time. Start early and come to office hours.
- I can see:
    - The answers you submitted
    - The number of attempts you made on the problem
    - When you attempted the problems.
- Don't expect an email response to homework inquiries within 12 hours of the due date time. Start early and come to office hours.

Syllabus Changes: *I reserve the right to change the policies contained in this syllabus as dictated by developments during the quarter.*

Course Requirements and Grading Standards

> **COURSE GRADE:**
> Online Homework 30%
> In-class Work 25%
> Exams 25%
> Final 20%

In-class Work: Including Worksheets and Quizzes

One-form of In-class work will be collected daily including worksheets, quizzes, and other work. If you are not present, you will miss the points for this work. There are no make-ups for in-class assignments. Keep in mind that not doing handouts during class (sleeping, Facebook, texting) or leaving as soon as they are given will result in point loss.

The 5 lowest scores will be dropped to make up for absences.

<u>Worksheets</u>**:** You should dive into the problems with your group and strive to understand the question, process and solution to your best ability. This is your opportunity to ask lots of questions! First you will discuss questions with your group, then you can bring a "group question" to the instructor. Through group work, I will help you learn how to ask questions, how to answer your own questions, how to use resources like your textbook, classmates, etc. The worksheets will be about the process, the logic and the justification – not the answer!!! If you do not finish the worksheet in class, you will take it home for homework. These will be turned in the next day and <u>graded for completion</u>. Worksheets can be scanned and emailed to the instructor in cases when you must miss class.
No late worksheets will be accepted.

<u>Quizzes:</u> Quizzes may occur any day, at any time of the class. They will be based on recent sections that we covered in class lectures and worksheets or on online homework. Quizzes will focus on graphing and vocabulary, but also on algebraic processes. This will be important practice for the exams. There are no make-up quizzes.

All written assignments must be typed or written in clear handwriting. If your instructors cannot read your work, they cannot grade it. *You will get a zero on the assignment if it is illegible, is not stapled together, has frizzy edges, or does not have the following three pieces of information on it:*

> Name: _____
> Assignment #: _____
> Date: _____

Online Homework:
http://webwork.math.cwu.edu/webwork2/Math173Wiegers/

Online homework will be assigned daily and are due within two school days at 10:00 am. Your goal for the online homework will be to practice the procedures and applications of the class. Doing the homework assignment on time is important for future class activities. The quizzes will be based on the last few online assignments, so you will need to not just get through the online homework, but will have to put in the effort to understand it deeply.

Keeping up with the homework is one of the best things you can do to help yourself succeed in this course! Don't expect an email response to homework inquiries within 12 hours of the due date time. Start early and come to office hours.

Also, be aware that you will receive more partial-credit on exams for showing work. Practice communicating your understanding of the problem by writing problems out by hand.

Exams:
> **<u>Tentative</u> in-class exam dates**:
>> ○ Tuesday, October 14th
>> ○ Wednesday, November 12th
> Regularly review your email and Canvas for any changes in exam dates.

A missed exam will be given a zero and there will be no make-up exams. The only exceptions to this will be made completely at the discretion of the instructor and will only be granted for serious and compelling reasons. Please contact me ASAP to ensure the likelihood have having your issue taken seriously.

Final Exam: Wednesday, December 10th, 8:00 - 10:00am
You must be present at the final exam! Add it to your calendar now.

Calculating Your Grade:
To track your progress in this course you should be comfortable calculating your own grade. Create a personal class folder to collect all your coursework. These will be needed to calculate your grade and will be useful when reviewing prior to exams. If you have questions about how to calculate your grade please visit the instructors in office hours.

Final Grades:
Final grades will be computed by assigning weights to homework, class work and to each of several exams, as described above.
The following table reflects the planned letter grade for the course structure.

Total Score	93-100	90-92	87-89	83-86	80-82	77-79	73-76	70-72	67-69	63-66	60-62	0-59
Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F

Course Expectations

Course Goals:
This class is meant to deepen your understanding of integral calculus. To do this it is important for you to develop a thorough understanding of variety of different mathematical content and mathematical skills. In this course, you will often work in groups with other students to apply your combined mathematical background and skills to solve problems and prepare for the next level of mathematics.

In this class you will learn…

- ***Working Cooperatively with Others***: Working in groups and talking about math helps you learn it better. Sometimes we think we understand an idea, but when we start talking about it, we realize there are concepts we need to understand better. Asking questions really helps!

- ***Problem Solving Skills:*** There are many skills involved in successfully doing math. Some people are better at memorizing, some at asking questions, and others at experimenting. We will help you identify your strengths and weakness in order to improve your mathematical problem solving.

- ***How to express solutions in written and oral form.***

  - ***How to use logic to justify mathematical ideas:*** Having the correct answer is not enough! You need to be able to explain and justify your logic. This will help you learn the material better, and perform better on tests.

  - ***How to "speak math:"*** Math requires that you learn a lot of new words, which can be very technical. You need to read the textbook and review definitions regularly in order to be savvy at speaking math.

Attendance and Participation:
Students who come to class regularly and are engaged, will learn and perform better. Check the course website regularly to make sure you are organized, and have completed all assignments.

When you get to class:

- Turn your cell phone ringers and vibration off.

- Take out calculators, paper, and pencils - be ready to work.

- Turn in the worksheet, if one is due that day.

Please find a non-cell phone based calculator for use in class and homework as I will not allow students to use a cell phone on their exams. The only calculators allowed on the test will be scientific calculators. Graphing calculators will be used in class for other activities.

You will be successful in this course if you....

Are Self-Motivated & Work Hard: *Learning mathematics takes a lot of practice and work.* In this class you will be expected to spend around 2-3 hours studying for this class each night. In total, you will be expected to spend 8-10 hours a week studying for this class. Additionally, you will need to put in extra time studying for exams.

Check your email and the course website regularly! You are expected to keep track of all your responsibilities.

Look for alternate ways of solving the same problem. In this class it is not enough to just get the answer. I want you to develop a deeper understanding of mathematical ideas so you can be a more versatile problem solver. People who can work flexibly, who can see more than one way to solve a problem, and who can make judgments about what might be best for a particular situation, have an advantage in almost every field from engineering to law, journalism and dance. You may have learned how to solve a problem one-way from your past instructors. If you can also master a different way of solving the same problems in this class, you will gain flexibility in your mathematical abilities.

Participate actively in group-work and class discussions: Each class will be designed to engage you in learning. You will often work in small groups to provide opportunities for each student to talk about the mathematics in the lesson. A part of building understanding is being able to describe what you are thinking and explain your reasoning. You will also need to listen to and critique the reasoning of other students – in a respectful manner. You will be asked to turn in something in each day – either a quiz, a worksheet, or possibly something else. This is so you can receive lots of feedback and adjust your studying accordingly.

Ask Questions: Sometimes students are shy about asking questions because they are afraid they will look "stupid." In this class your questions will be valued! The class will be effective for you and your classmates when everyone participates actively, asking questions and probing deeper into ideas. Talking about mathematics helps you learn it better! You will be assigned online homework every class and it will be due two days later. This means you have a day in-between to ask questions in office hours, with a tutor or with classmates.

Believe in yourself and your ability to do math: It's a common myth that some people are good at math and some are not. In reality, there are several skills that go into doing mathematics well, and these skills can be practiced and improved. Your instructor can help you identify your strengths, as well as your challenges in doing math. We will work together to improve these challenges. In this class, everyone can develop the skills and the confidence to do math!

University Policies

Religious Holidays: Reasonable accommodations will be made for you to observe religious, holidays when such observances require you to be absent from class activities. It is your responsibility to inform the instructor during the first two weeks of class, in writing, about such holidays.

Academic Integrity: While completing this course you must follow the CWU Student Code of Conduct which is defined by Washington State. Please be reminded that the Washington State Legislature defines Academic Dishonesty in all its forms including, but not limited to the following:

  - Cheating on tests.
  - Copying from another student's test paper.
  - Using materials during a test not authorized by the person giving the test.
  - Collaboration with any other person during a test without authority.
  - Knowingly obtaining, using, buying, selling, transporting, or soliciting in whole or in part the contents of an unadministered test or information about an unadministered test.
 - Bribing any other person to obtain an unadministered test or information about an unadministered test.
 - Substitution for another student or permitting any other person to substitute for oneself to take a test.
 - ``Plagiarism'' which shall mean the appropriation of any other person's work and the unacknowledged incorporation of that work in one's own work offered for credit.
 - ``Collusion'' which shall mean the unauthorized collaboration with any other person in preparing work offered for credit.
http://app.leg.wa.gov/WAC/default.aspx?cite=106-120-027

Support Services/ Accommodations: *Students who have special needs or disabilities that may affect their ability to access information and/or material presented in this course are encouraged to contact the office of Disability Support Services on campus (Bouillon 140 –or- dssrecept@cwu.edu -or- 963-2171). Also, please let me know if you need me to accommodate for a disability in anyway, I am glad to do so!*

Incompletes: The College Policy on Incompletes states that Incompletes are used when the student was not able to complete the course by the end of the term, but has satisfactorily completed a sufficient portion of it and can be expected to finish without having to re-enroll in it. In this course, students who have not completed substantial coursework should not assume that they will be "given" an incomplete at the end of the semester. If you have concerns about this you should talk to the course instructor and your academic advisor.

Important Dates:

Sept 30   **Change of Schedule Period Ends (Add/Drop classes)**
                    Drops completed prior to this date or by the close of business on this date will not appear on transcripts or have tuition assessed
Sept 30   **Deadline to declare audit & credit/no credit grading.**
Oct 15   **Faculty Professional Development – No class will be held.**
Oct 23   **Deadline for 50% refund with complete withdrawal**
Nov 7   **Uncontested withdrawal period deadline**
Nov 11   **Veterans' Day Holiday (observed)**
Nov 23-25   **Thanksgiving Holiday**
Dec 5   **Withdrawal from classes or university. Not permitted except for "serious and compelling reasons."**