

Math 299S Learning Outcomes

This course introduces students to selected topics from the historical development and applications of mathematics together with their relationship to the development of our present society.

At the end of the Math 299S course students will...

- Gain the knowledge of mathematical major options.
- Be introduced to the mathematical community of support for their mathematics major.
- Perform basic problem solving skills.
- Be able to interpret and manipulate quantified statements in mathematical notation.
- Learn the technical tools to support their future coursework.
- Be able to create a visualization of the mathematical problems presented.
- Be able to use a computer system to calculate mathematical iterations.



In addition, in this class you will learn ...

1. To apply appropriate technology to solve problems;
 - a. Be able to use a graphing calculator to intelligently extract information regarding functions is critical.
2. Working cooperatively with others;
3. Problem solving skills,
 - a. Describe the methods used to approach a problem;
 - b. Read and understand complex mathematical problems;
 - c. Model phenomena mathematically;
4. How to express solutions in written and oral form.
 - a. How to “speak math”, and
 - b. How to use logic to justify mathematical ideas,

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

1. Are self-motivated,
2. Willing to work hard,
3. Look for alternate ways of solving the same problem,
4. Participate actively in group-work and class discussions,
5. Ask questions, and
6. Believe in yourself and your ability to learn and grow.

See pages 4 & 5 for more details

General Course Information

Course Website

In addition to regular Canvas postings, the following website will serve as a collection of resources for Central math majors.

<http://www.cwu.edu/math/math-299s-welcome-math-major>

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: MW 11:00-11:50 am, **Location:** Hertz 119
TTh 11:00-11:50 am, **Location:** Bouillon 103 PC lab

Office Hours:

MTWThF	10:10-10:50 am	Bouillon Hall 107A
Monday, Wednesday	1:30 – 2:30 pm	Bouillon Hall 107A

Additional office hours are available via appointment, please email the instructor to schedule these meetings.

Required Course Materials:

Textbook: Art & Craft of Problem Solving. Zeitz. Wiley.

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.

Computer Access

Regular computing assignments will play a role in this course. If you do not have personal computer access make sure to start assignments early and make use of the CWU computing resources.

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:

In-class work/ homework 20%
Weekly Problem Write-up 30%
Math Projects 30%
Final Project 20%

Note. All written assignments must be written in clear handwriting or typed. 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: _____

In class work/ homework: Including worksheets and other work will be collected daily at the start of class.

If you are not present, you will miss the points for this work. There are no make-ups for in-class assignments. The 5 lowest scores will be dropped to make up for personal absences.

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.

Worksheets/ In class-problems: 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 graded for completion.

10 points for a completely attempted assignment

5 points for some attempts

0 points for assignments not turned in or turned in late.

Worksheets can be scanned and emailed to the instructor.

Note: Doing the homework assignment on time is important for future class activities. **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 quizzes for showing work. Practice communicating your understanding of the problem by writing problems out by hand.

Weekly Problem Write-up

Each day of class will start with a new mathematical problem. You will review these weekly problems, pick your favorite and type up a problem summary of the problem, your attempts, and the solution by the following Monday. Additional details about the expectations for the write-up will be provided in class

Math Projects:

Multiple projects will be assigned for work throughout the quarter to support your understanding of the topics discussed in class. Additional details will be provided on the website and in class.

Project Due Dates: Incomplete projects will NOT be accepted for credit. In order to receive full credit for an assignment, it MUST be completed and turned in by class time on the specified due date. Any assignment turned in late, but on or before the following class period will receive a maximum of one-half credit. Any assignment turned in after this date will not be graded and no credit will be given for it.

Assignment Format: To meet the learning objective of technical report writing, for each of the computational project you will write a brief technical report which answers the given questions and illustrates the fundamental ideas in clear, concise, descriptive English prose. The report should separate the required tasks of the given project and document each in the appropriate section, i.e. Analysis, Computer Program, or Results. Refer to the Project Format Directions for more details on each section.

Final Project: Wednesday, December 9th, 8:00- 10:00am

Additional details will be provided in the class. Note: You must be present at the final presentations. 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 provide a useful resource as you continue as a math major. 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 the several projects, as described above.

The following table reflects the planned letter grade for the course structure.

Total Percentage	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 Canvas 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 assignment, 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 and working for this class.

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!

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 (DS@cwu.edu -or- 963-2214 –or- visit their office in Hogue 126). 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 29 | Change of Schedule Period Ends (Add/Drop classes)
<i>Drops completed prior to this date or by the close of business on this date will not appear on transcripts or have tuition assessed</i> |
| Sept 29 | Deadline to declare audit & credit/no credit grading. |
| Nov 6 | Uncontested withdrawal period deadline |
| Nov 11 | Memorial Day– No class will be held. |
| Nov 25-27 | Thanksgiving Recess- No class will be held. |
| Dec 4 | Withdrawal from classes or university. Not permitted except for "serious and compelling reasons." |