

Math 130 (Finite Math)

Winter 2023-- online

Office: Samuelson 209

Virtual Office hours: by appointment

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I will do my best to meet with you at any reasonable time to answer questions or discuss issues! If you can't get me on email, text me or call me (509-929-2019)

You will have six to eight synchronous “quizzes” with the instructor. Please take care to schedule these using the technology I provide (the application I previously used is no longer available and so I am still looking for a replacement).

Course Overview: At CWU, Finite math is one of the courses that can be selected to satisfy the reasoning requirement for graduation and it is commonly taken as a prerequisite for statistics. It is real-world applicable and serves to prepare students for research and statistical courses at a later date.

I am not trying to suggest that you are all going to find this course practical or even enjoyable. Based on experiences from courses over the years some of you will find it frustrating, but I hope that is a very low number of you. Upon completion of my undergraduate mathematics degree I remember thinking, “How can I use this?” And to my disappointment I didn't have an answer. After 10 or so years of teaching high school mathematics I asked the same question (how will my students use this?) and I still had a similar answer. Mathematics courses should not just prepare us for some “future” situation (additional courses...), but we should find some immediate value.

I want for this to be a course that has real world application! What does that mean to me? Successful people in life can work well with others. The most successful make others better and allow others to make them better! Therefore, this class will be “project based”. Also, I want for us to not just recognize “formulas”, but also to be able to use them to find answers to (somewhat) interesting and (somewhat) practical questions. This course will deal with questions on using probability to rank items from least likely to most likely; predict likely outcomes based on probability; using statistics to understand events that occur around us (normal curve); and understanding “Confidence Intervals” and how we can use them in real life to make projections! Realize that this is an introductory course and so we will deal with these questions at rudimentary levels. The majority of your grade will be based on these projects.

Some are already asking, “Do we have to work in a group?” Twenty-five percent of your grade

for each project will be based on how you and your group work together and providing me with a group evaluation of it.

Textbook:

Finite Mathematics, introductory probability & statistics (Owen & Cutlip) any edition.

Required tools: Access to Canvas, access to a scanning device, graphing calculator, stylus (or some other writing utensil) and effort!

Topics covered:

1. Counting and probabilities

How do we:

Take a large number of items and make sense of them? We put them into a Venn diagram or into a table.

Count large numbers of objects? How many different groups of 5 can we get if we had 50 items to start with? We use sophisticated counting schemes like permutations or combinations

How is it that someone can give a probability that some item will last past its warranty? Reliability of systems.

2. Variables and probability distributions

Turning probability events into a mathematics model (using variables and probability together). What is the probability of selecting one red ball and one green ball from five balls?

Describing data (Is there a pattern in the data and how can we use that?)

Two types of patterns that we see (Binomial distribution & Normal distribution)

3. Introduction to Statistics (How can we use probability?)

Graphical techniques (graphs)

Measures of Central Tendency (mean, median, and mode)

Measures of dispersion (Is the data spread out or constant? Think random or not)

Confidence intervals (think elections and the +/- with each poll shown)

4. Using statistical tables

Binomial probability distributions

Standard normal distribution table

CWU posted grade scale will be used-- I typically do not round grades

Student outcomes will include comprehension of topics as demonstrated by completion of assigned homework, quizzes, and tests. In addition, application of topics related to probability and statistics must be demonstrated by successful completion of projects.

Evaluation and Assessment: homework, oral quizzes, tests, and project grades will predominantly be used to evaluate student learning and progress. Worksheets and Homework

are assigned and submitted every week or two for a grade (completion and effort for worksheets and five problems graded for homework). These should be scanned and uploaded into Canvas. Point values are shown on canvas and grades are accumulated and the CWU grade scale is used. I do not round.

Important-- homework and also worksheets must be scanned and uploaded to Canvas. When you submit these, **please do the homework in a single document and also the worksheet in a single document**. Also, while most of the homework problems are available in the solutions manual, I encourage you to not use this resource until after you attempt the homework.

Grading for homework—I will “somewhat randomly” select five problems to grade from your homework. I say somewhat because I select from what I consider to be the “harder” problems. Your grade will be based on correct/incorrect for those problems I selected. Most of the problems I select I will have completed for you during the lecture. Also, if you have a question on homework, I will do my best to answer completely any question and I will do the problem with you.

All submissions are through Canvas (**Do not send files to me through email, I will not accept them.**)

All uploads need to be in a single document and not a number of separate files

The final is difficult, and a number of students drop their grade by one letter grade.

Necessities

1. Participation- I am encouraging all students to complete the worksheets prior to watching the recording where I do them. A reminder is always in order that math is not a “spectator sport”.
2. PLEASE, DO NOT ask me for an exception **AFTER THE FACT.** I will work to accommodate all needs and help you to be successful, but it is unprofessional to request an exception after something is due.
3. My cell phone number is provided for you when you have need to speak with me. If you text, please provide your name and the class (509-929-2019).
4. Scientific calculator (TI- 83 is recommended)
5. Regular communication through office “hours”, email, or phone call.
6. Provide course feedback.

Calendar & Assignments: Are found under the “Syllabus” tab on Canvas-- this will be frustrating for some, but most due dates are not found on the calendar. Because I take feedback from students as the course progresses, and adjust accordingly, I do not have set due dates for specific assignments.

Canvas: Course materials will be posted on Canvas and all resources and links will also be available.

I will do my best to meet the needs of all students.