

**Department of Mathematics
Central Washington University
Winter 2019**

Math 130 Finite Mathematics

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Office Hours: 11-11:50AM Monday-Friday

Course description: This course meets General Education "Reasoning" requirement and prepares student for introductory statistics courses in various departments. It covers the language of sets, counting procedures, introductory probability, and introductory descriptive statistics.

Course goals: This course is designed to help you become capable of critical thinking by understanding and then mastering the basic principles of counting and probabilities at first, and ultimately applying the necessary techniques to quantitative decision makings in real life. Descriptive statistics will be explored right after probability distributions (models) are established for random events of an experiment. At the end of this course, students are expected to have gained solid probability reasoning skills to learn statistics and apply the content knowledge to real world random phenomena.

Required Text: 1. Bill Owen and Fred Cutlip, *Finite Mathematics: Introductory Probability and Statistics*, Thomson Learning;
 2. Math 130 Course pack by Professor Chueh. Please pick up in the Wildcat store.

Calculator: A calculator with statistical functions is required in class and writing exams. TI-83 Plus graphing calculator or similar model is required.

Course outlines:

- Introductory counting and probability
- More counting and probability including conditional probability, independence, Bayes' theorem
- Random variables and probability distributions
- Descriptive statistics

Grade Assessment:

1. Class Attendance and Professionalism (5%)

All students are responsible for actively participating in all classroom sessions in a positive, sensitive, and contributory manner. Please note passivity in discussion/response will be equally as noticeable as active response and discussion in class for the grading reference. In each class meeting session (**worth of 2.5 points**) observed passivity in joining whole class discussion will result in a "Zero" point on this category.

See Attendance Policy: Extra credit points will be awarded to those students who do not miss class or are absent once. Absences will NOT BE EXCUSED without a published obituary or

medical note from health care provider. Documentation will not be accepted until it is officially confirmed by the professor. **Repeated late arrivals / early departures will result a drop of the letter grade.**

If you are an athlete and have games or practices scheduled during class, you must present appropriate documentation that will excuse you from class. Please consider taking the class at another time if you cannot be here on a timely and consistent basis.

Please be on time for class. If you are late, have the courtesy not to disrupt the learning environment.

Professionalism–

- Punctual attendance is required as part of the **Professionalism** requirement. You need to be in class to earn credit.
- Informal assessment on participation: We will treat each other with courtesy, cordial civil manner and sensitivity, flexibility. This “Professionalism” category refers to one’s chosen actions, attitude, and choice of words in the public, during class discussion, in writings, through course assignments, in forms of communications on your grades or sharing personal opinions. This category is evaluated according to the instructor’s discretion.
- When class in session, electronic device of all sorts are required to ***turn off and put away out of sight***. Any of the following disruptive behaviors will result in **5%** taken off in the final grade ***each time of incident***: Playing computer games, repeated early departure and late arrival, cell phone disruptions, ***electronic texting, surfing internet***, reading the newspaper, grading papers or projects, studying for exams, working on other class assignments, engaging in ***incessant talking of a social nature***, and / or (but not limited to) behaviors that disturb the learning environment for other students. Points will be taken off by the instructor’s discretion (No warnings given). Inappropriate and unprofessional academic behaviors will be reported to CARR (Committee for Academic Recruitment and Retention) for advisement and improvement plan.

2. Worksheets: In-class and Take-home worksheets (Found in your Course Pack) will be assigned and collected for grading. The due dates are as planned in this syllabus but might be gently adjusted for reflecting on the class progress. Please always shoot for the planned due date unless you hear announcement of due date change in class. Group collaboration (up to 4 students) is highly encouraged and ***only one copy*** of the best quality worksheet should be turned in including the names of contributing students endorsed by the all the students listed on the submission. It is prohibited and a cheating behavior by adding your ‘friend’s’ name who did not or poorly contribute.

3. Homework: Daily textbook reading and exercising from each textbook section is expected and necessary, as an important part to pass this course. You are expected to preview exercises from each section after reading and before that types of questions are illustrated in class. It is not likely we will demonstrate solutions to all the exercises, due to limited class time and in-class work, so please

bring in your questions to class so that your own study is well covered. A rule of thumb is—99% of the odd-numbered exercises from the textbook should be completed on a daily basis and use the class time to tackle exercises that you have trouble with. Textbook exercises and worksheet questions will form the basis of the tests and final exam. You are encouraged to solve as many problems within your group as possible and seek help from during the class time and my office hours.

4. Tests and Final Exam: After solving section exercises and worksheets problems, with corrections noted and learned, you can find practice test problems in the course pack. The review test questions are served as sample test questions so that students are aware of the scope and types of questions to master for each test. You must practice these questions early, ideally a week prior to the test, in order to benefit from these sample questions. If you think you are smart enough and try to cram and memorize the solutions a few days or even the night before the test, it will definitely result in a failure grade as frequently happened to ‘decent math’ students.

Grading: Your course grade will be determined by the following:

1. **Class attendance and Professionalism:** 30 points
2. **In-Class Practice:** 60 points
3. **Tests:** Four 100-point in-class tests. You get to drop the lowest of your four scores (see **Note** below), so these tests will count for 300 points.
4. **Worksheets:** 110 points. Tentative due dates are given on the syllabus and will not be changed without announcement in class. Please turn in before the class starts. No late turn in is accepted
5. **A comprehensive final exam** worth 100 points.

A perfect score on both of the above categories would result in a total of **600 points**. Your course grade will be determined by the percentage *p* of these points you earn, according the following scale.

A (100-94%) A- (93-90%) B+ (89-87%) B (86-83%) B- (82-80%) C+ (79-77%)
 C (76-73%) C- (72-70%) D+ (69-67%) D (66-63%) D- (62-60%) F (59-0%)

Note: No makeup exams will be given without a written request providing proof of evidence. If you miss an exam, it will be the one you drop. You **must** take the final exam to pass the course.

Students with Disability. Students with disabilities who require academic adjustments in this class are encouraged to meet with me during my office hours to discuss their disability-related needs. Please bring a copy of your Confirmation of Eligibility for Academic Adjustments. We will then discuss how the approved adjustments will be implemented in this class. Students without this but in need of requesting services should contact the CDS for additional information at Bouillon 205, or via cdsreceipt@cwu.edu or 963-2171.

SCHEDULE OF CLASS TOPICS AND ASSIGNMENTS

**This schedule is tentative, the instructor reserves the right to make changes in the syllabus by the needs of the class.*

Topic coverage and test schedule are presented below. In order to perform well in this class, **preliminary textbook reading** before each class and reviewing class notes throughout the entire quarter is necessary. Students are advised to complete the homework assignments soon after the each topic is covered. **Daily assignments are all the odd-numbered textbook exercises** although students are encouraged to solve even-numbered exercises with answers available on my webpage.

<u>Week and days</u>	<u>Textbook Reading</u>	<u>Topics</u>
1. 1/3~1/4	§6.1~6.2 ○ Worksheet 1 due Friday 1/4	Counting and Probability <ul style="list-style-type: none"> ▪ Sorting a population ▪ Counting principle
2. 1/7~1/11	§6.3~6.7 ○ Worksheets 2 and 3 due Friday 1/11	<ul style="list-style-type: none"> ▪ Probability ▪ Experiments ▪ Rules ▪ Equally likely prob. ▪ Relative frequency
3. 1/14~1/18	Review ○ Worksheet 4 due Friday 1/18 Test 1 (Covering Chapter 6)	Friday 1/18
4. 1/21~1/25	§7.1~7.2 ○ Worksheet 5 & 6 due Friday 1/25	More counting and prob. <ul style="list-style-type: none"> ▪ Counts ▪ Variation on counting ▪ Conditional prob.

5. 1/28~2/1

§7.3~7.4 (Important! DO NOT MISS.)

- Multiplicative Rule
- Tree
- Independence

- Worksheet 7&8 due Friday 2/1

6. 2/4~2/8

- Worksheet 9&10 due Thursday 2/7

Thursday 2/7: Q&A on Test 2 review questions.

Test 2. (Covering Chapter 7) Friday 2/8

7. 2/11~2/15

§8.1~8.4

**Random variables and
prob. dist.**

- Random variables
- Dispersion of random variable
- Binomial dist.

- Worksheet 11&12 due Friday 2/15

8. 2/18~2/22

Test 3 (Covering Chapter 8 Sections 8.1~8.4) Monday 2/18

§8.5~8.6

Normal distributions

- Density curves
- Applications

- Worksheet 13 due Friday 2/22

9. 2/25~3/1	§9.1~9.4	Statistics <ul style="list-style-type: none">▪ Graphical▪ Numerical▪ Relative standing <ul style="list-style-type: none">○ Worksheet 14 due Friday 3/1
10. 3/4~3/8	Review Q&A session Test 4 (Covering Chapter 9)	Thursday 3/7
11. 3/11~3/15	Final Exam (To be scheduled by the registrar's office)	