

Professor: Dr. Chris Black
Office: (Ellensburg: Bouillon Hall #122) DES MOINES: HEC #270
Office Hours: By arrangement
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Text: *Data and Probability Connections: Mathematics for Middle School Teachers*,
Perkowski & Perkowski, Pearson Prentice-Hall, 2007

Required Materials: Graphing calculator, preferably TI-84 or TI-83.

GOALS FOR COURSE:

Upon successful completion of this course, MATH 405 students will be able to:

- ... choose appropriate graphical representations of data and interpret data presented in such displays;
 - ... calculate and interpret basic descriptive statistics;
 - ... create and interpret lines of best fit and correlation coefficients;
 - ... calculate probabilities for simple events from a variety of random experiments;
 - ... correctly apply principles of counting and use them to calculate probabilities;
 - ... actively participate in the classroom dialogue, both as an individual and as a member of a small group, and be an active partner during in-class work.
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ABOUT THIS COURSE:

The primary purpose of this course is to prepare preservice teachers to effectively teach probability and statistics in the middle grades. From the text:

Standards-based middle school curricula are designed to engage students in a variety of mathematical experiences, including thoughtfully planned classroom explorations that provide and reinforce fundamental skills while illuminating the power and utility of mathematics in our world. These materials integrate central concepts in algebra, geometry, data analysis, probability, & mathematics of change and focus on important unifying ideas such as proportional reasoning.

The mathematical content of standards-based middle grade mathematics materials is challenging and relevant to our technological world. Its effective classroom implementation is dependent upon teachers having a strong and appropriate mathematical preparation. [p. vii-viii]

We will devote our energies in this class to studying mathematical content as well as analyzing the Common Core State Standards for Statistics and Probability. Participants in this course will study the material both as student and as teacher.

COURSE EXPECTATIONS:

Being successful in a mathematics class generally requires good study habits, hard work & patience while attempting problem sets, and proper time management. Each student is expected to attend every class meeting, to read and think about the assigned sections of the text prior to class, to complete homework problems and other assignments in a timely manner, and to seek the assistance of the instructor when difficulties are encountered.

STRUCTURE OF THIS COURSE:

This course is structured as a hybrid course. We will meet face-to-face for two hours per week, and we will work online for the equivalent of another two hours per week. It is expected that students commit at least two hours outside of class for every credit hour of a college course, so you should plan on spending at least 10 hours per week outside of class in order to succeed in this hybrid version of Math 405. As we only meet once per week, you are expected to check your email daily for any course updates or changes.

We will be implementing a “flipped classroom” model for this class, meaning that you will do the preliminary work of reading the text and defining basic terms before attending class, and during class we’ll work on meaningfully engaging with the content. Structuring the class this way allows you maximum access to your best resource (me!). I can answer any questions you may have via email while you prepare yourself for class. This before-class preparation will take various forms:

- You are expected to read the assigned sections of the text and complete the directed reading assignments on Canvas before class begins. Multiple sections of a chapter will be assigned per week, so pace yourself and don’t procrastinate on the reading. If skipped, these assignments cannot be made up.
- You are expected to watch any assigned videos before class. These will likely be assigned sporadically, and not for every section of material.
- We will be using the Discussion forum on Canvas, and your participation in these discussions will determine part of your course grade. See the details below.
- We may use Canvas to collaborate on written documents, either for small group work or for peer review.

GRADING:

Homework:	20%
Discussion:	5%
Reading Questions:	5%
Written assignments:	20%
Tests:	30%
Final Exam:	20%

HOMEWORK:

Written homework assignments from the text are due in class each Monday. For weeks where we do not meet on Monday due to a holiday, you will scan the written assignment into an electronic file and upload it to Canvas as you do for a written assignment. Homework problems will be assigned from the course text, and your scores comprise 20% of your course grade.

DISCUSSION:

We will use Canvas's discussion board to deepen understanding of the material in the course and to encourage students to both ask and answer questions. Each weekly discussion thread will have an assigned *initiator*. The job of the initiator is to be the first person to answer the question, either with an answer or with a related question, by Wednesday at 10:00 pm. After the initiator has responded, the question is open for all students to respond (or to further question). If the initiator does not provide a response by the open date, then they are assigned a score of zero for that discussion, and any other student is free to start the discussion which will continue until class begins. You are required to contribute to a minimum of 80% of the discussion threads to receive full credit for this grading category. The discussion component comprises 5% of your course grade.

READING QUESTIONS:

Each section of material has a set of reading questions that you need to answer before you attend class. This short set of questions is designed to ensure that you understand some of the basic facts of the course. These questions are structured to be at Level 1 on Webb's Depth of Knowledge scale, meaning that they require recall of facts or rote application of simple procedures. We'll develop deeper knowledge during class time and in written & homework assignments. The reading questions will be answered through a Canvas 'quiz' that you can answer multiple times until the answers are correct. These reading questions comprise 5% of your total course grade.

WRITTEN ASSIGNMENTS:

Written assignments will be uploaded through Canvas and graded using the Canvas speed grading tool. These assignments will take various forms, and comprise 20% of your total course grade.

TESTS:

There will be two tests in the course, administered in class. (New material will be presented in the second hour of the class period.) These two tests comprise 30% of your total course grade.

1. Test #1 on Chapters 1 - 3 will take place on Monday, 2/8, from 4:30 - 5:30 pm.
 2. Test #2 on Chapters 4 & 5 will take place on Monday, 3/7, from 4:30 - 5:30 pm.
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FINAL EXAM:

The final exam is scheduled for Monday 3/14/2016 from 4:30 - 6:30 pm. This will be a comprehensive exam covering the basic concepts of the course, with a focus on Chapter 6. The final exam comprises 20% of your total course grade.

ABSENCES:

Due to our limited in-class time, it is imperative that you avoid missing class. If you do need to miss a class, it is your responsibility to contact a class member to find out what was missed during the class period. Any graded activities completed during class cannot be made up without prior approval of the professor, and will be recorded with a grade of zero.

A missed test may not be made up without just cause. If you have an unavoidable conflict or severe illness that requires you to miss a test, contact the professor BEFORE the scheduled time of the test. **Documentation must be provided in order to make alternate arrangements.**

HONOR AND RESPECT:

Each of us should consider our placement at this institution to be a privilege. We need to have respect for one another, and for ourselves. In light of these facts, cheating in any form will not be tolerated. You are encouraged to work together on homework problems, however anything you turn in with your name on it should have been written by you alone. In a course where much of your grade is determined by your proof writing, plagiarism is a concern. The word “plagiarize” is defined by Merriam-Webster as “to steal and pass off (the ideas or words of another) as one’s own: use (another’s production) without crediting the source.” This is a very serious offense and jeopardizes your position in a teacher preparation program.

DISABILITY SERVICES:

Students with disabilities wishing to use academic adjustments in their CWU classes must be registered with Disability Services (DS). Information about the DS intake process may be obtained by emailing cds@cwu.edu or calling (509) 963-2171. Qualified students with disabilities may establish academic adjustments in this class by either sending me their official on-line accommodation request or speaking with me to establish the manner in which requested adjustments will be delivered.