

Professor: Dr. Chris Black
Office: Bouillon Hall #122
Office Hours: MWTh 2:00 - 3:00, TF 10:00 - 10:50, and whenever my office door is open
Office Phone: x2602
Email : blackc@cwu.edu (*It is most reliable to reach me via email*)

Required Text: *Linear Algebra, with Applications*, Steven J. Leon, 9th edition, Pearson.

GOALS FOR COURSE:

Upon completion of MATH 265, students will:

- ... be able to solve a linear system using matrix methods
 - ... be able to correctly use the specialized vocabulary and notation of linear algebra;
 - ... be able to think abstractly about vector space structures;
 - ... understand the axiomatic structure of vector spaces;
 - ... know how and when to use linear algebraic techniques to model and analyze application problems.
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COURSE PHILOSOPHY:

Linear algebra is of fundamental importance in all fields of higher mathematics and in nearly all applications of mathematics, particularly those involving technology. At its core, linear algebra is a study of structure. The primary concept in the course is that of a *vector space*, which is a set of objects that act like vectors in two or three (or higher) dimensional Euclidean space. Many of the calculations in linear algebra can be facilitated through the use of technology, such as TI-89 (or above) calculators or computer algebra systems such as MATLAB or Mathematica. However, we will NOT emphasize the use of technology in this course, but instead rely on pencil and paper calculation.

PROBABLE COURSE TOPICS:

- ▷ Matrices and systems of equations
- ▷ Vector spaces and subspaces
- ▷ Determinants
- ▷ Linear transformations
- ▷ Eigenvectors and eigenvalues

A NOTE ON VOCABULARY:

Perhaps more than any other course in the mathematics curriculum, linear algebra is swimming in new vocabulary terms. It is crucial that you keep up with the new vocabulary words, and understand what they mean. According to Vygotsky's theory of language acquisition, *thought is not merely expressed in words; it comes into existence through them*. Without mastery of the vocabulary, you cannot fully comprehend the depth of linear algebra. Pay special attention to new terms as they arise.

GRADING:

WebWork Assignments:	Scaled to 150 points total (18 of these)
In-Class Tests:	100 points each (3 of these)
Final Exam:	150 points
Participation & Citizenship:	25 points

HOMEWORK:

There are two types of homework in this course:

1. Odd-numbered problems will be assigned from the text, but not collected. You should work these problems, check the answers in the back of the text and seek help if needed. Only after this step should you proceed to the problems on WebWork.
2. Graded homework will be submitted and graded online through WebWork:

`webwork.math.cwu.edu > WeBWorK Homework for Students > Math265Black`

You will be given a login and password for WebWork which is *different from your CWU login and password*.

WebWork problems can be re-worked as many times as needed until the right answers are found, except for multiple choice problems which generally allow 5 attempts per problem. You can contact me for help if you're stuck by hitting the "Email Instructor" button on the problem. This will allow me to click through immediately to the exact question and help you to solve it. Recognize that email sent after 5:00 pm may not receive a response until the next weekday, so plan ahead.

WebWork problems are due at 11:59 pm on the date specified on the assignment sheet. These will be accepted for an additional 7 days for 50% credit.

TESTS:

We will have three tests during the quarter, as specified on the course schedule. The tests will take the full period and are worth 100 points each. If you need to miss an exam for a school-sponsored event such as a field trip or participation in sports, a make up test will only be offered if arranged in advance. Otherwise, no make-up tests will be given unless you can provide documentation for an extenuating circumstance such as hospitalization or incarceration. However, one test score may be replaced by the score on the relevant portion of the final exam (see below).

FINAL EXAM:

The final exam is cumulative and **MUST** be taken during the officially designated time. The final exam will consist of three sections that roughly correlate to the material covered on the three tests. If it is in your favor, one (and only one) test score can be replaced by the scaled score on the corresponding section of the final exam. The final exam is worth 150 points.

PARTICIPATION & CITIZENSHIP:

You are expected to be awake, alert and attentive during class, and to participate in group or pair activities as they arise. This may include presenting your work to the class at the board or using the document camera. Citizenship addresses your behavior and comporment with class members and the instructor. We each need to be respectful of other students and differing ideas within our learning community.

HOW TO SUCCEED IN THIS COURSE:

Daily attendance is expected, and considered necessary for success. If you need to miss class for some reason, it is your responsibility to find out what occurred in class while you were absent, from either another student or the professor. You are responsible for any announcements made in class regarding assignments and tests, whether or not you are present.

During class, you are expected to be alert and engaged. We will often do individual or group work during class, which clarifies or strengthens your understanding of the material. You are expected to work cooperatively with others, and to possibly present your work to the class.

Daily homework will be assigned, both from the text and through the online system WebWork. Text-based assignments are expected to be completed, but will not be collected or graded. Problems assigned from WebWork will be graded as your homework score. *Just doing the WebWork problems is not enough to succeed in the course.*

All work handed in for the courses must be legibly written with correct mathematical notation and sufficient explanation that another student could follow your reasoning. A complete explanation is required to receive full credit on exams.

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. Any infractions may result in a zero for the assignment, a failing course grade, and the possibility of disciplinary action by the university.

DISABILITY SERVICES:

Students with special needs or disabilities who wish to set up academic adjustments in this class should provide me with a copy of the "Confirmation of Eligibility for Academic Adjustments" from the Center for Disability Services as soon as possible so we can discuss how the approved adjustments will be implemented in class. Students without this form should contact the Center for Disability Services, Bouillon 205, by calling 963-2171 or emailing dsrecept@cwu.edu.

I retain the right to change the policies contained in this syllabus as dictated by developments during the quarter.