MTH 261: Linear Algebra, Spring 2018
MWF 9:20-10:20 Patterson 105

Professor: Dr. Pamela Richardson

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Email Policy

Email is the official means of communication at Westminster College. Please feel free to contact me via email, but be sure that you email the correct Dr. Richardson! All messages received after 4:00 PM may not be answered until the following day.

Prerequisite:

A grade of C- or better in MTH 250, Calculus III, is required to take this course. If you do not satisfy this prerequisite, please see me.

Text:


Calculator:

A calculator is not required for this course. No calculators may be used on exams. When permitted, certain matrix operations may be calculated with the aid of computer algebra systems on homework.

Content and Outcomes:

In MTH 261, we will study the algebra of matrices, linear systems, vector spaces, linear transformations, eigenvectors, and applications in both \( \mathbb{R}^n \) and more abstract settings. Emphasis will be placed on mathematical writing as well as computation. By the end of this course, students should be able to

- Apply concepts and skills introduced in class to solve new problems.
• solve systems of linear equations in \( n \) unknowns,

• determine the properties of matrices and linear transformations,

• determine linear independence and span of a set of vectors,

• find particular subspaces of a vector space,

• demonstrate ability to manipulate abstract algebraic systems,

• use appropriate mathematical notation and terminology, and

• write proofs, including direct proofs, proof by contrapositive, and proof by contradiction.

Attendance:

Attendance is very important in this course. If you must miss class, you are responsible for all material covered and announcements given in class. Any materials distributed to the class will be posted on D2L. Please turn off all electronic devices during class unless arrangements have been made for their use. Active participation in class will be expected of every student for the entire class period. Part of your final grade will be an assessment of your participation and engagement in class activities and discussions. Please note that this grade will be based on active participation and not merely attendance! If you are texting, checking e-mail, playing Tetris, etc., you are NOT engaging in the course material, and your grade will reflect this behavior.

Homework:

Homework problems will be assigned after each class and may include both problems from the textbook as well as supplementary problems that I design for the course. Your homework assignments (and their due dates) will be posted on the course page on D2L in the “Content” section; be sure to check it often for updates. Homework should be written up neatly, and all appropriate work must be shown to receive credit. All problems will be collected for each assignment, but only selected problems will be graded each week. Each problem will be graded out of 2 points (2=correct or only a small error, 1=partially correct, 0=missing or no clue). The lowest three homework scores will be dropped; consequently, absolutely no homework will be accepted late. You may collaborate on your homework assignments in groups of at most 3 and submit one set of solutions for each group. However, please be aware that all group members are responsible for understanding (and being able to reproduce) the solutions that are submitted! You will be tested on the material, and students who do not actively contribute to homework solutions typically do not perform well on exams.

To be successful in this class, it is imperative that you are doing your own work and not doing online/literature searches to find the answers to your homework problems. Presenting a solution found online as your own work is plagiarism. Thus, inappropriate use of books, articles, web sites, tutors, solutions, etc. will be considered an academic integrity violation and will be handled
according to the policy below.

In addition to the problems I assign, I also expect you to read your textbook as part of your daily assignment. You will be responsible for reading sections in the textbook that we cover in class. Also, you will have an assignment requiring you to attend the Undergraduate Research and Arts Celebration on Wednesday, April 18. This is a very important academic day and is NOT a “day off” of classes!

**LaTeX:**

This semester, we will introduce LaTeX, a math typesetting program. Over the course of the semester, you will be given at least one writing assignment to be completed in LaTeX. Any LaTeX assignments will be in addition to the standard homework assignments, so advance notice will always be given.

**Exams:**

There will be three written midterm exams and a comprehensive final exam. The tentative dates of the midterm exams are as follows:

- Friday, February 9
- Friday, March 16
- Friday, April 13.

Makeup exams may only be given if both Dr. Richardson and Dean McMinn approve the reason and alternative arrangements are made BEFORE the exam is given in class.

The final exam will be held on **Thursday, May 10, from 8:00-10:30am.**

**Course Grades:**

Your course grade will be determined by the following distribution:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework</td>
<td>14%</td>
</tr>
<tr>
<td>Participation and LaTeX Assignments</td>
<td>7%</td>
</tr>
<tr>
<td>Midterm Exams</td>
<td>18% each</td>
</tr>
<tr>
<td>Final Exam</td>
<td>25%</td>
</tr>
</tbody>
</table>

The grading scale will be

- B+: 88-89
- C+: 78-79
- D+: 68-69
- A: 92-100
- B: 82-87
- C: 72-77
- D: 62-67
- F: 0-59
- A-: 90-91
- B-: 80-81
- C-: 70-71
- D-: 60-61.
Academic Integrity:

*Central to the purpose and pursuit of any academic community is academic integrity. All members of the Westminster community, including students, faculty, staff, and administrators, are expected to maintain the highest standards of honesty and integrity, in keeping with the philosophy and mission of the College.*

Westminster College 2017-18 Undergraduate Catalog, p. 65

Some forms of academic dishonesty include (but are not limited to): copying a classmate’s work (homework, extra credit, or exams), divulging answers or information to another student during or about an exam, and using unauthorized aids (e.g., professors, textbooks, internet sites) on an assignment or exam. Academic dishonesty will not be tolerated in this class. The penalty for academic dishonesty is a grade of 0 on the assignment. Any event of academic dishonesty is reported to the Dean of the College. Other details of violations and consequences are given in the Catalog.

Students with Disabilities:

Westminster College actively strives for the full inclusion of all our students. Students with disabilities who require access solutions for environmental or curricular barriers should contact Faith Craig, Director of Disability Resources, located in 209 Thompson-Clark Hall. You may reach her at 724-946-7192 or craigfa@westminster.edu. No accommodations can be given without documentation from the Disability Resources Office.

Important Dates:

1/23: Last Day to Add/Drop
2/9: Exam 1
3/16: Exam 2
3/3-3/11: Spring Break - No Classes
3/23: Last Day to Withdraw
3/29-4/2: Easter Break - No Classes
4/3: Monday Classes Meet (on a Tuesday)
4/13: Exam 3
4/18: Undergraduate Research & Arts Celebration - Attendance Required!
5/4: Classes End
5/10: Final Exam