


Course Syllabus

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TMATH 308 A Course Syllabus

- Spring Term 2020 (SLN 20529)
- Instructor: Ruth Vanderpool
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Classtime:

T Th: 8:00-10:00 pm. Zoom Meeting ID: 141-005-799 <https://washington.zoom.us/j/141005799> 
(<https://washington.zoom.us/j/141005799>)

Drop-In Hours:

- Tuesday & Thursday 10:30-11:30am
- Zoom Meeting ID: 255-311-5190
- <https://washington.zoom.us/my/rvanderp>  (<https://washington.zoom.us/my/rvanderp>)

Course Description:

Introduces linear algebra, including systems of linear equations; Gaussian elimination; matrices and matrix algebra; vectors; vector spaces; subspace of Euclidean space; linear independence; bases and dimension; orthogonality; eigenvectors; and eigenvalues. Applications include data fitting and the method of least squares. Prerequisite: minimum grade of 2.0 in either TMATH 125 or TCSS 321.

Student Learning Outcomes:

By the end of the course students should be able to:

1. use Gaussian elimination to find solutions to linear systems
2. perform basic matrix operations and find multiplicative inverses if one exists
3. calculate determinants manually or through the use of basic properties
4. write a mathematical proof for basic properties about subspaces
5. calculate eigenvectors and understand their connection with linear transformations
6. apply linear algebra to science or engineering.

Rights of the Learner

As a student in this class, you have the right:

- to be confused,
- to make a mistake and to revise your thinking,
- to speak, listen, and be heard, and
- to enjoy doing mathematics.

Opportunities for Mastery:

- Daily homework that provides feedback and support in a low stakes manner.
- Existing tokens that allow for either a late WrittenHW submission or WrittenHW regrade.

Required Items:

- Leon, S. (2015). *Linear Algebra with Applications*, 9th edition. Pearson.

- Calculators: Either scientific or graphing are welcome. Although no internet tools are allowed during exams, you are welcome to use Desmos Test Mode on a smart device if you have one.

Tentative Schedule:

Upcoming due dates for assignments and exams are posted in the "Coming Up" section on the right side of your screen immediately after you log into Canvas. The due dates for the entire course are listed at the bottom of this Syllabus and can also be found on the Calendar link (at the top of this page). Details about topics to learn, material to review, and projects that need work are posted in the [Useful Notes and other things](#) link at the bottom of the home page.

Grading:

The following weights will be used to calculate your percentage in the course. See descriptions of each category below.

Written Homework (Wednesday, Friday)	15%
Participation--Daily Homework	5%
Participation--Discussion and Activities	5%
Project portfolio	30%
Midterm	20%
Final	25%
Total	100%

Your final percentage will then be converted to the UW 4.0 scale at my discretion. If you meet the minimums below, you will be guaranteed the listed grade.

Letter Numeric Minimum percentage

A	4.0	92.5
A-	3.7	90
B+	3.3	87.5
B	3.0	82.5
B-	2.7	80
C+	2.3	77.5
C	2.0	72.5
C-	1.7	70
D+	1.3	67.5

D	1.0	60
D-	.7	50
F	0	0

Homework:

There are two types of homework, daily homework and written homework.

Daily homework problems are for familiarizing yourself with the concepts and practicing computational skills. You should keep a notebook for your daily homework problems. They are not collected or graded. However, I ask for volunteers (individuals or groups) to write solutions on a virtual discussion board before the next class begins. *Each solution as a group earns its members 2 pt. Each solo solution earns its author 1 pts. You are expected to earn 10 problem presentation points from Daily Homework during the quarter (think group presentation every week or individual presentation every other week).*

Post a problem solution by replying to the appropriate discussion thread before class starts. We will take the first 15 minutes of our meeting to review the solutions together. You can "like" a problem as a way to request it be discussed. The problem(s) with the greatest numbers of likes will be addressed first.

Important: **Problems can be answered more than once, but for subsequent answers to earn credit, they should bring something new to the discussion.**

Written homework is due approximately twice a week on Wednesdays and Fridays by 8:00 pm. They contain 1-4 conceptual problems. Your submission is to be uploaded as a pdf file to the Canvas assignment (I recommend CamScanner to create pdfs from pictures) and will be graded according to the homework rubric.

You are allowed and encouraged to work together on homework. However, each student is expected to turn in his or her own work. There will be opportunities to resubmit some work on which you did not earn full marks. However to earn the opportunity to resubmit, you must first have met the original deadline.

Tokens:

You start the quarter with **5 tokens**.

- You may exchange one token for the opportunity to *rework and resubmit a graded assignment*. The new points earned will be added to the original score.
- You may exchange one token to submit a late assignment without penalty.

Late assignments without tokens will be penalized 50%.

At the end of the quarter, any unused tokens will accumulate extra credit towards your score on the final exam.

Participation:

Class activities provide time and space for working with and familiarizing yourself with the concepts and can help shape and direct events in class. These are not graded although I do ask for volunteers (individuals or groups) to share on a virtual discussion board during class. *Each post as a group earns its members 1 pt. Each solo post earns its author 2 pts. You are expected to earn 10 participation points from these activities during the quarter (think group contribution every week or individual post every other week).*

Project:

You will complete a project in a group of 3 (or 2) exploring an application of matrix algebra to a topic you are interested in. There will be numerous due dates for different parts of the project and at the end of the quarter you will turn in a paper and record a presentation on the application that your project is focused on. See the "[Project Information](#)" document on Canvas for more details.

Exams

The date of the midterm is **May 7th**. The exam is to be done individually and synchronously within the assigned class time while proctored. Notes, books, internet tools and collaboration are not allowed for this exam. The final exam is **Tuesday, June 9th** and will be a two-hour comprehensive online proctored exam.

Make-up tests will only be given for absences deemed justifiable by the instructor (e.g., illness, family emergency), and may be considerably more difficult than the original test. If you must be absent for an exam, I will only give a make-up exam if notified in advance.

A device that can connect video through the class zoom meeting must be secured for the exam dates. Many computers and smart phones suffice but also note that UWT has laptops that are still available for an extended checkout period. During the exam the camera connected to zoom will be pointed at your hands so that your progress can be monitored. If you use Desmos TestMode you will need to make sure the video connection is made on a separate device than the one running Desmos TestMode.

The exams will be provided in a pdf format through email and Canvas and can be printed (if a printer is convenient) or remain on the screen of an internet accessing device while you write your answers on a separate sheet. Submission through Canvas will have the same protocol as WrittenHW.

Getting Help:

[. \(https://www.google.com/url?q=https://docs.google.com/document/d/1h-9ks1Rj1AswJswN4qgjn-veRxVH9WkAfS6Cu89JCHY/edit&sa=D&ust=1585007673675000\)](https://www.google.com/url?q=https://docs.google.com/document/d/1h-9ks1Rj1AswJswN4qgjn-veRxVH9WkAfS6Cu89JCHY/edit&sa=D&ust=1585007673675000) Many resources exist, are available, and are intended to help you with math, technology, and personal issues and questions. A few of the most helpful are listed [here](#) [. \(https://www.google.com/url?q=https://docs.google.com/document/d/1h-9ks1Rj1AswJswN4qgjn-veRxVH9WkAfS6Cu89JCHY/edit&sa=D&ust=1585007673676000\)](https://www.google.com/url?q=https://docs.google.com/document/d/1h-9ks1Rj1AswJswN4qgjn-veRxVH9WkAfS6Cu89JCHY/edit&sa=D&ust=1585007673676000).



Tips for Success:

A few, class-specific things to do that will help you get the most out of this class.

General Policies:

[. \(https://www.google.com/url?q=https://docs.google.com/document/d/1FjxC22UgjVM7JT_2e6DHkSpk5ZWdIEVUU34AJhQMhY/edit&sa=D&ust=1585007673677000\)](https://www.google.com/url?q=https://docs.google.com/document/d/1FjxC22UgjVM7JT_2e6DHkSpk5ZWdIEVUU34AJhQMhY/edit&sa=D&ust=1585007673677000) Campus-wide and class policies regarding inclement weather and emergency procedures are posted [here](#) [. \(https://uw.instructure.com/courses/603479/wiki/general-policies\)](https://uw.instructure.com/courses/603479/wiki/general-policies).

Course Summary:

Date	Details	Due
Tue Mar 31, 2020	 308A Matrix Algebra With Applications (https://canvas.uw.edu/calendar?event_id=1517950&include_contexts=course_1377502)	7:50am to 10:20am
Wed Apr 1, 2020	 Introductions & course memories Activity (https://canvas.uw.edu/courses/1377502/assignments/5357064)	due by 12pm