



MATH 120: Introduction to Linear Algebra
Winter 2022 Syllabus

Place/Time: Online	Instructor: Wanchunzi Yu
Duration: December 22-January 16	Office Hours: TBA (Or by appointment)
Course Credits: 3	E-mail: wyu@bridgew.edu

Course Description

Topics include algebra and geometry of vectors, linear equations, matrices, determinants, basis and dimension, and the use of homogenous coordinates for the matrix representation of linear and geometric transformations and their compositions.

Prerequisites

Mathematics placement test

Texts

Elementary Linear Algebra, 8th Edition, (with **WebAssign**), by Ron Larson
 Students must purchase access to WebAssign, but a hard copy of the text is **optional**. Access to WebAssign includes access to an electronic version of the textbook.

Topic Calendar

No.	Sections Covered (Tentative)	Week
1	1.1 Introduction to Systems of Linear Equations	Week 1
2	1.2 Gaussian Elimination and Gauss-Jordan Elimination	Week 1
3	1.3 Applications of Systems of Linear Equations	Week 1
4	2.1 Operations with Matrices	Week 1
5	2.2 Properties of Matrix Operations	Week 1
6	2.3 The Inverse of a Matrix	Week 1
7	2.4 Elementary Matrices	Week 1
8	2.5 Markov Chains	Week 2
9	2.6 More Applications of Matrix Operations	Week 2



10	3.1 The Determinant of a Matrix	Week 2
11	3.2 Determinants and Elementary Operations	Week 2
12	3.3 Properties of Determinants	Week 2
13	3.4 Applications of Determinants	Week 2
14	4.1 Vectors in \mathbb{R}^n	Week 2
15	4.2 Vector Spaces	Week 2
16	4.3 Subspaces of Vector Spaces	Week 2
17	4.5 Basis and Dimension	Week 2
18	4.6 Rank of a Matrix and Systems of Linear Equations	Week 2
19	4.7 Coordinates and Change of Basis	Week 3
20	4.8 Applications of Vector Spaces & Exam 1 Review	Week 3
21	5.1 Length and Dot Product in \mathbb{R}^n	Week 3
22	5.2 Inner Product Spaces	Week 3
23	5.3 Orthonormal Bases: Gram-Schmidt Process	Week 3
24	5.4 Mathematical Models and Least Squares Analysis	Week 3
25	5.5 Applications of Inner Product Spaces	Week 3
26	6.1 Introduction to Linear Transformation	Week 3
27	6.2 The Kernel and Range of a Linear Transformation	Week 3
28	6.3 Matrices for Linear Transformation	Week 4
29	6.4 Transition Matrices and Similarity	Week 4
30	6.5 Applications of Linear Transformations	Week 4
31	7.1 Eigenvalues and Eigenvectors	Week 4
32	7.2 Diagonalization	Week 4
33	7.3 Symmetric Matrices and Orthogonal Diagonalization	Week 4
34	7.4 Applications of Eigenvalues and Eigenvectors & Final exam review	Week 4



Homework

Homework problems are online, we will use the online resource WebAssign for weekly homework assignments and tutorial videos. Make sure to select the correct course, the url for this section [link](#).

Please refer to WebAssign Instruction on the blackboard for more details. Some written homework may also be collected. NO LATE HOMEWORK WILL BE ACCEPTED.

Blackboard

Grades and additional course content will be uploaded to [Blackboard](#). Make sure to check it regularly for updates.

Attendance

Attendance for the course will be the videos with questions on WebAssign Lectures. For each section, videos with questions are available on WebAssign. Please complete the videos to receive the full attendance credits.

Midterm Exams

You will take 1 mid-term exams during the semester. The exam is given online, time will be limited to class time. Each will involve a mix of mechanical skills and conceptual reasoning. The best possible preparation for them is regular attendance and completion of assigned homework. You may have 1 page 8x11 of hand written notes (two sides) on each exam, including a final exam. Make-up exams are only given in case of documented emergencies.

Final Exam

The final exam will take place on online on Blackboard. The official BSU Final Exam Schedule is [here](#).

Grading

Your final course grade will be determined by

Homework: 30%

Attendance: 30%

Midterm: 20%

Final Exam: 20%

Grading Scale:

Letter grades will be assigned as follows:

A	93-100	C	73-76
A-	90-92	C-	70-72



B+	87-89	D+	67-69
B	83-86	D	63-66
B-	80-82	D-	60-62
C+	77-79	F	below 60

The Academic Achievement Center (AAC) provides students with academic services and resources that propel them toward successful and timely degree completion. With all the services available in the center, the AAC is the largest hub of student academic services on campus. Ideally located on the ground floor of the Maxwell Library in the center of the BSU Campus, the AAC is comprised of four major support areas: Academic Advising (first-semester freshmen), the Disability Resources Office, Learning Assistance (tutoring and academic coaching), and Testing Services. Drop-in learning support areas (Math Services, Accounting & Finance Lab, Writing Studio, Second Language Services), open study space, study rooms available for reserve, and computers are all available for student use. Stop by or call 508-531-1214 for more information about any of the services offered by the Academic Achievement Center.

Disability Resources Office (DRO)

Bridgewater State University is committed to providing equal access to students with documented disabilities. To ensure your access to this course and the BSU community, students with disabilities are encouraged to collaborate with the Disability Resources Office (DRO). Through the DRO, you may initiate the confidential process of requesting reasonable accommodations. The DRO can be reached at Disability_Resources@bridgew.edu or 508.531.2194. If you are granted accommodations, please meet with me confidentially to review how they will be applied in this course. The DRO also provides alternatively worded syllabus statements, as well as other faculty-specific information, [here](#).

Math Services

Math Services provides free tutoring on a walk-in basis. It is located in the basement of Maxwell Library.

*** This syllabus may be amended during the semester.**