



Bridgewater State University

MATH 120: Introduction to Linear Algebra

Summer 2021 Syllabus

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| Time: Monday- Friday | Instructor: TBD |
| Office: TBD | Office Hours: TBD |
| Phone: TBD | E-mail: TBD |
| Semester: June 14th - July 9th 2021 | 3 Credits |

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 by Howard Anton and Chris Rorres.

Blackboard

Course content (e.g. syllabus, notes, homework assignments) will be uploaded to [Blackboard](#). Make sure to check it regularly for updates.

Quizzes (Attendance)

Quizzes will be given in class. Often you will be able to work in groups, but each individual student must submit his or her own work. **There will not be any make-up quizzes available.**

Exams

There will be two tests and one final exam given during the semester. All tests will be taken in the classroom on the dates indicated on the given table. Exams are given in class, 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 & quizzes. You may have 1-page 8x11 of hand written notes (1 side only) on each exam, including a final exam, specific problems solved may be included. Make-up exams are only given in case of documented emergencies.

Grading

Your final course grade will be determined by

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| Homework: | 25% |
| Attendance: | 10% |
| Midterm Exam: | 20% each |
| Final Exam: | 25% |

Grading Scale:

A 90-100% B 80-89.9% C 70-79.9% D 60-69.9% F 0-59.9%

Topic Calendar

| No. | Sections Covered (Tentative) | Day |
|-----|---|-----|
| | Week 1 June 14 th – June 18 th | |
| 1 | 1.1 Introduction to Systems of Linear Equations | 1 |
| 2 | 1.2 Gaussian Elimination | 1 |
| 3 | 1.3 Matrices and Matrix Operations | 1 |
| 4 | 1.4 Inverse; Algebraic Properties of Matrices | 1 |
| 5 | 1.5 Elementary Matrices and a Method for Finding A^{-1} | 1 |
| | Week 2 June 21 st - June 25 th | |
| 6 | 1.6 More on Linear Systems and Invertible Matrices | 1 |
| 7 | 1.7 Diagonal, Triangular, and Symmetric Matrices | 1 |
| 8 | 1.8 Matrix Transformations | 0.5 |
| 9 | 2.1 Determinants by Cofactor Expansion | 0.5 |
| 10 | 2.2 Evaluating Determinants by Row Reduction | 0.5 |
| 11 | 2.3 Properties of Determinants; Cramer's Rule & Exam 1 Review | 0.5 |
| 12 | 3.1 Vectors in 2-Space, 3-Space, and n-Space | 0.5 |

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| 13 | 3.2 Norm, Dot Product, and Distance in \mathbb{R}^n | 0.5 |
| | Week 3 June 28 th – July 2 nd | |
| 14 | 3.3 Orthogonality | 1 |
| 16 | 4.1 Real Vector Space | 0.5 |
| 17 | 4.2 Subspaces | 0.5 |
| 18 | 4.3 Linear Independence | 1 |
| 19 | 4.4 Coordinates and Basis | 0.5 |
| 20 | 4.5 Dimension | 0.5 |
| 21 | 4.6 Change of Basis | 0.5 |
| 22 | 4.7 Row Space, Column Space, and Null Space | 1 |
| | Week 4 July 5 th -July 9 th | |
| 23 | 4.8 Rank, Nullity, and the Fundamental Matrix Spaces & Exam 2 Review | 1 |
| 24 | 5.1 Eigenvalues and Eigenvectors | 1.5 |
| 25 | 5.2 Diagonalization | 1 |
| 26 | 6.1 Inner Products & Final Exam Review | 1 |

Academic conduct

Students are encouraged to discuss the course material with one another and form study groups to prepare for the quizzes and exams. However, collaboration on individual assignments (homework, quizzes, and exams) is not allowed and will be handled in accordance with BSU's [academic integrity policy](#).

* This syllabus may be amended during the semester.