

MATH 170B - MATHEMATICAL STRUCTURES II
SECTION 02, SCHEDULE #19042
FALL 2022

Course Times: TuTh 8:30am-9:45am

Instructor: Mr. Hall

Office: MH-187A

Office Phone: 657-278-8519

Course Location: MH-615

Email: nhall@fullerton.edu

Office Hours: MW 10:00am-11:00am

TuTh 11:30am-12:00pm

Text: *Linear Algebra with Applications* by Keith Nicholson. This is an open source text that is available on the [LYRYX](#) website.

Course Description: This course is part of a two-course series (with Math 170A). These courses are designed to provide a background in discrete mathematics for the computer science major. Math 170B explores linear algebra, including systems of linear equations, matrix algebra, determinants, vectors, and vector spaces.

Learning Goals:

By the end of this course, you will . . .

- have a deep understanding of linear algebra theorems and computations.
- be able to work with and solve complex ideas and problems in linear algebra.
- apply linear algebra to a wide set of applications.

These skills and ways of thinking will be very valuable to you in your future computer science classes and in your career.

Assignments and Exams:

Homework (10%): Homework is to be completed on LYRYX. Click here to register: [LYRYX](#).

Quizzes (15%): Quizzes will be given as noted in the class calendar. No make-up quizzes will be given. The lowest quiz score will be dropped.

Midterm Exams (25% each): There will be two midterm exams scheduled for Thursday, September 29 and Thursday, November 10. No make-up exams will be given. In the event of a verified emergency (resulting in one missed exam), one exam score can be replaced with the grade received on that portion of the final exam. The instructor must be notified by email (by the student or their agent) within 24 hours of the missed exam and appropriate verification must be supplied when the student returns to class.

Final Exam (25%): The final exam for this course will be comprehensive. The final exam will be on Thursday, December 15 from 9:00am-10:50am.

Evaluation: Final course grades will be based upon the percentage of total points earned throughout the course. Grades will be distributed according to the following (after rounding to the nearest percent):

A+	A	A-	B+	B	B-	C+	C	D	F
97-100%	92-96%	90-91%	87-89%	82-86%	80-81%	77-79%	70-76%	60-69%	0-59%

Calculators: A standard or scientific calculator may be used. No other calculators or electronic devices will be allowed during quizzes or exams.

Participation: Students are expected to check their email regularly for announcements and to participate in class discussions.

Email Policy: Emails will usually be answered by the next weekday. Emails must contain the words “Math 170B” *in the subject line*. All emails must contain your name and section number (this is section 02).

Important Dates:

- September 6 (Tuesday): Last day for students to ADD with a permit. All permits expire at midnight.
- September 6 (Tuesday): Last day for students to DROP without a grade of “W”. Students drop using Titan Online.
- September 19 (Monday): Last day the Math Department will be flexible on the approval of non-medical withdrawal requests. Beginning Tuesday, September 20, students must have a serious and compelling reason for non-medical withdrawal requests and must provide supporting documentation for their reason. Subject to change at the discretion of NSM Dean’s Office.
- November 10 (Thursday): Final deadline to submit a withdrawal request from classes with a grade of “W” for a truly serious and compelling reason that is clearly beyond the student’s control. Students must document their reason.
- December 2 (Friday): Final deadline to submit a withdrawal request of “W” for medical reasons.

IMPORTANT UNIVERSITY INFORMATION AND STUDENT POLICIES

Use the link above for important information on

- Students with Special Needs
- Academic Dishonesty Policy
- Emergency Preparedness
- Library Support
- Final Exams Schedule
- University Learning Goals (Undergraduate, Graduate, and General Education)
- Degree Program Learning Outcomes

Tentative schedule (May be modified as needed).

Week	Sec. #	Topics	Date
1	1.1 1.2	Solutions and Elementary Operations Gaussian Elimination	
2	1.3 1.4 1.5	Homogeneous Equations An Application to Network Flow An Application to Electrical Networks Quiz 1	Th, Sept 1
3	2.1 2.2	Matrix Addition, Scalar Multiplication, and Transposition Equations, Matrices, and Transformations	
4	2.3 2.4	Matrix Multiplication Matrix Inverses Quiz 2	Th, Sept 15
5	2.5	Elementary Matrices/Linear Transformations Quiz 3	Th, Sept 22
6	2.6	Linear Transformations (continued) Exam 1	Th, Sept 29
7	2.7 2.9	LU-Factorization An Application to Markov Chains	
8	3.1 3.2	The Cofactor Expansion Determinants and Matrix Inverses Quiz 4	Th, Oct 13
9	3.3 3.4	Diagonalization and Eigenvalues An Application to Linear Recurrences Quiz 5	Th, Oct 20
10	4.1 4.2	Vectors and Lines Projections and Planes Quiz 6	Th, Oct 27
11	4.3 4.4	More on the Cross Product Linear Operators on \mathbb{R}^3 Quiz 7	Th, Nov 3
12	5.1	Subspaces and Spanning Catch-up/Review Exam 2	Th, Nov 10
13	5.1 5.2	Subspaces and Spanning (continued) Independence and Dimension	
14	5.3 5.4	Orthogonality Rank of a Matrix Quiz 8	Th, Dec 1
15	5.5	Similarity and Diagonalization Review Quiz 9	Th, Dec 8
16		Final Exam: 9:00am-10:50am	W, December 14