



Department of Mathematics

Summer 2022

(Disclaimer: Be advised that some information on this page may not be current due to course scheduling changes.

*Please view either the **UH Class Schedule page** or your Class schedule in **myUH** for the **most current/updated information.**)*

Mini Session: (05/16—06/04) , **Session #1:** (06/06—08/12) , **Session #2:** (06/06—07/07) , **Session #3:** (06/06—07/26) , **Session #4:** (07/11—08/10)

GRADUATE COURSES - SUMMER 2022

SENIOR UNDERGRADUATE COURSES

This schedule is subject to changes. Please contact the Course Instructor for confirmation

Course	Section	Course Title & Session	Course Day & Time	Rm #	Instructor
Math 4377 / Math 6308	10125	Advanced Linear Algebra I (Session #2)	MTWThF, Noon— 2PM	CBB 104	A. Haynes
Math 4378 / Math 6309	10744	Advanced Linear Algebra II (Session #4)	MTWThF, 10AM— Noon	CBB 104	M. Kalantar
Math 4389	12373	Survey of Undergraduate Math (Session #2)	MTWThF, 10AM— Noon	SEC 203	D. Blecher

GRADUATE ONLINE COURSES

Course	Section	Course Title	Course Day & Time	Instructor
Math 5341	12620	Mathematical Modeling (Session #4)	(online)	J. He
Math 5383	13408	Number Theory (Session #2)	(online)	M. Ru
Math 5389	11333	Survey of Mathematics (Session #2)	(online)	G. Etgen
Math 5397	16145	Survey of Mathematics (Session #4)	(online)	A. Török

GRADUATE COURSES

Course	Section	Course Title	Course Day & Time	Rm #	Instructor
Math 6308	13221	Advanced Linear Algebra I (Session #2)	MTWThF, Noon—2PM	CBB 104	M. Kalantar
Math 6309	13222	Advanced Linear Algebra II (Session #4)	MTWThF, 10AM—Noon	CBB 104	A. Haynes
Math 6386	12913	Big Data Analytics (Session #3)	Fr, 3—5PM	SEC 201	D. Shastri

-----**Course Details**-----

SENIOR UNDERGRADUATE COURSES

Prerequisites: MATH 2331 and MATH 3325, and three additional hours of 3000-4000 level Mathematics.

Text(s): Linear Algebra, 5th Edition by Stephen H. Friedberg, Arnold J. Insel, Lawrence E. Spence. ISBN: 9780134860244

Syllabus: Chapter 1, Chapter 2, Chapter 3, Chapter 4 (4.1-4.4), Chapter 5 (5.1-5.2) (probably not covered)

Description: Course Description: The general theory of Vector Spaces and Linear Transformations will be developed in an axiomatic fashion.

Determinants will be covered to study eigenvalues, eigenvectors and diagonalization.

Grading: There will be three Tests and the Final. I will take the two highest test scores (60%) and the mandatory final (40%). Tests and the Final are based on homework problems and material covered in class.

<< back to top >>

Math 4378 - Advanced Linear Algebra II

Prerequisites: Math 4377 or Math 6308

Text(s): Linear Algebra, 5th edition, by Friedberg, Insel, and Spence, ISBN: 9780134860244

Description: The instructor will cover Sections 5-7 of the textbook. Topics include: Eigenvalues/Eigenvectors, Cayley-Hamilton Theorem, Inner Products and Norms, Adjoints of Linear Operators, Normal and Self-Adjoint Operators, Orthogonal and Unitary Operators, Jordan Canonical Form, Minimal Polynomials.

<< back to top >>

Math 4389 - Survey of Undergraduate Math

Prerequisites: MATH 3330, MATH 3331, MATH 3333, and three hours of 4000-level Mathematics.

Text(s): Instructors notes

Description: A review of some of the most important topics in the undergraduate mathematics curriculum.

ONLINE GRADUATE COURSES

<< back to top >>

[<< back to top >>](#)

MATH 5341 - Mathematical Modeling

Prerequisites: **Graduate standing.** Calculus III and Linear Algebra

Text(s): Textbook (*free download*): **Introduction to Applied Linear Algebra**, Boyd and Vandenberghe, Cambridge University Press, 2018

Course Platforms: MS Teams and Blackboard.

Course Technology Requirements: Computer, internet, microphone and webcam.

Description: **Course Overview:** The course introduces vectors, matrices, and least squares methods, related topics on applied linear algebra that are behind modern data science and other applications, including document classification, prediction model from data, enhanced images, control, state estimation, and portfolio optimization. We will review vectors and matrices in the first two weeks, and then focus on least squares and more advanced examples and applications in the following two and half weeks.

Detailed Syllabus (PDF)

[<< back to top >>](#)

MATH 5383 - Number Theory

Prerequisites: Graduate standing.

Text(s): TBA

Description: TBA

[<< back to top >>](#)

MATH 5389 - Survey of Mathematics

Prerequisites: Graduate standing
Text(s): Instructor's notes
Description: A review and consolidation of undergraduate courses in linear algebra, differential equations, analysis, probability, and abstract algebra. Students may not receive credit for both MATH 4389 and MATH 5389.

<< back to top >>

MATH 5397 - Selected Topics in Mathematics
Prerequisites: Graduate standing
Text(s): Instructor's notes
Description: TBD

GRADUATE COURSES

<< back to top >>

MATH 6308 - Advanced Linear Algebra I
Prerequisites: **Graduate standing.** MATH 2331 and MATH 3325, and three additional hours of 3000-4000 level Mathematics.
Text(s): Linear Algebra, 5th Edition by Stephen H. Friedberg, Arnold J. Insel, Lawrence E. Spence. ISBN: 9780134860244
Syllabus: Chapter 1, Chapter 2, Chapter 3, Chapter 4 (4.1-4.4), Chapter 5 (5.1-5.2) (probably not covered)
Description: Course Description: The general theory of Vector Spaces and Linear Transformations will be developed in an axiomatic fashion. Determinants will be covered to study eigenvalues, eigenvectors and diagonalization.
Grading: There will be three Tests and the Final. I will take the two highest test scores (60%) and the mandatory final (40%). Tests and the Final are based on homework problems and material covered in class.

<< back to top >>

MATH 6309 - Advanced Linear Algebra II

Prerequisites:

Graduate standing. Math 4377 or Math 6308

Text(s):

Linear Algebra, 5th edition, by Friedberg, Insel, and Spence,
ISBN: 9780134860244

Description:

The instructor will cover Sections 5-7 of the textbook. Topics include: Eigenvalues/Eigenvectors, Cayley-Hamilton Theorem, Inner Products and Norms, Adjoints of Linear Operators, Normal and Self-Adjoint Operators, Orthogonal and Unitary Operators, Jordan Canonical Form, Minimal Polynomials.

<< back to top >>

MATH 6386 - Big Data Analytics

Prerequisites:

Graduate standing. **Students must be in the Statistics and Data Science, MS program.** Linear algebra, probability, statistics, or consent of instructor.

Text(s):

TBA

Description:

Description: Concepts and techniques in managing and analyzing large data sets for data discovery and modeling: big data storage systems, parallel processing platforms, and scalable machine learning algorithms.

Class notes: *Computer and internet access required for course. For the current list of minimum technology requirements and resources, copy/paste/navigate to the URL <http://www.uh.edu/online/tech/requirements>. For additional information, contact the office of Online & Special Programs at UHOnline@uh.edu or 713-743-3327. Course instruction for this section takes place both in a classroom face-to-face environment during the scheduled time and additionally by electronic means.*

<< back to top >>