



Department of Mathematics

Summer 2024

(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.**)*

Session #Regular: (TBA) , **Session #2:** (06/03—07/03) , **Session #3:** (06/03—07/26) , **Session #4:** (07/08—08/07)

Graduate Courses - SUMMER 2024

(UPDATED 05/16/24)

SENIOR UNDERGRADUATE COURSES

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

Course/Section	Class #	Course Title & Session	Course Day & Time	Rm #	Instructor
Math 4377 / Math 6308	10094	Advanced Linear Algebra I (Session #2)	MTWThF, Noon—2PM (F2F, Session 2)	GAR G201	D. Labate
Math 4378 / Math 6309	10478	Advanced Linear Algebra II (Session #4)	MTWThF, Noon—2PM (F2F, Session 4)	S 105	M. Kalantar
Math 4389	15269	Survey of Undergraduate Math (Session #2)	Online (<i>Asynchronous/On Campus Exams</i>)	online	G. Etgen

GRADUATE ONLINE COURSES

Course/Section	Class #	Course Title	Course Day & Time	Instructor
Math 5341-01	11882	Mathematical Modeling (Session #2)	(online) Asynchronous - On Campus Exams	J. He
Math 5383-01	12441	Number Theory (Session #2)	(online) Asynchronous - On Campus Exams	M. Ru
Math 5389-01	10960	Survey of Mathematics (Session #2)	(online) Asynchronous - On Campus Exams	G. Etgen

GRADUATE COURSES

Course/Section	Class #	Course Title	Course Day & Time	Rm #	Instructor
Math 6308	12311	Advanced Linear Algebra I (Session #2)	MTWThF, Noon—2PM	GAR G201	D. Labate
Math 6309	12312	Advanced Linear Algebra II (Session #4)	MTWThF, Noon—2PM (F2F)	S 105	M. Kalantar

MSDS GRADUATE COURSES

(MSDS Students Only - Contact **Ms. Callista Brown** for specific class numbers)

Course/Section	Class #	Course Title	Course Day & Time	Rm #	Instructor
Math 6386	<i>not shown to students</i>	Big Data Analytics (Session #3)	F, 3—5PM	TBD	D. Shastri

- Course Details -

Senior Undergraduate Courses

Math 4377 - Advanced Linear Algebra I	
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

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

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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.

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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.

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ONLINE GRADUATE COURSES

MATH 5341 - Mathematical Modeling	
Prerequisites:	Graduate standing. Calculus III and Linear Algebra
Text(s):	Textbook (<i>free download</i>): Introduction to Applied Linear Algebra , Boyd and Vandenberghe, Cambridge University Press, 2018

Description:	<p>Course Platforms: MS Teams and Blackboard.</p> <p>Course Technology Requirements: Computer, internet, microphone and webcam.</p> <p>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.</p> <p>Detailed Syllabus (PDF)</p>
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MATH 5383 - Number Theory	
Prerequisites:	Graduate standing.
Text(s):	Instructor's notes
Description (Catalog):	Divisibility and factorization, linear Diophantine equations, congruences and applications, solving linear congruences, primes of special forms, the Chinese remainder theorem, multiplicative orders, the Euler function, primitive roots, quadratic congruences, representation problems and continued fractions.

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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.

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

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GRADUATE COURSES

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
Description:	<p>Syllabus: Chapter 1, Chapter 2, Chapter 3, Chapter 4 (4.1-4.4), Chapter 5 (5.1-5.2) (probably not covered)</p> <p>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.</p> <p>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.</p>

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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.

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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):	<ul style="list-style-type: none"> • "Learning Spark: Lightning-Fast Data Analytics", by Jules S. Damji, Brooke Wenig, Tathagata Das, and Denny Lee, 2020, 2nd Edition, O'Reilly Media. (LS) ISBN 13: 978149205004 [<i>Available for free on UH Library à Safari Books Online</i>] • "Big Data Analytics with R: Leverage R Programming to uncover hidden patterns in your Big Data", by Simon Walkowiak, 2016, 1st Edition, Packt Publishing. ISBN 13: 9781786466457 [<i>Available for free on UH Library à Safari Books Online</i>] • Mining of Massive Datasets 3rd Edition by Jure Leskovec, Anand Rajaraman, Jeffrey David Ullman 2020, 3rd Edition, Cambridge University Press. ISBN 13: 978-1108476348 [<i>Available for free at http://www.mmds.org/</i>]
Description:	<p>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.</p> <p>Class notes: <i>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.</i></p>

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