Department of Mathematics

Summer 2019

*(**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**.)*

GRADUATE COURSES - SUMMER 2019

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 - 01	11151	Advanced Linear Algebra I (Session #2: 06/03—07/03)	MTWThF, 10am—Noon	SEC 105	A. Haynes
Math 4378 - 01	12367	Advanced Linear Algebra II (Session #4:07/08—08/07)	MTWThF, 10am—Noon	F 162	A. Török
Math 4389 - 03	16578	Survey of Undergraduate Math (Session #4: 07/08—08/07)	MTWThF, 10am—Noon	SEC 203	D. Blecher

GRADUATE ONLINE COURSES

Course	Section	Course Title	Course Day & Time	Instructor
Math 5310	16560	History of Mathematics (Session #4: 07/08—08/07)	(online)	S. Ji
Math 5336	11662	Discrete Mathematics (Session #2: 06/03—07/03)	(online)	K. Kaiser
Math 5341	17811	Mathematical Modeling (Session #4: 07/08—08/07)	(online)	J. Morgan
Math 5382	14092	Probability (Regular Session: 06/03—07/24)	(online)	J. West
Math 5389	14463	Survey of Mathematics (Session #2: 06/03—07/03)	(online)	G. Etgen

GRADUATE COURSES *(under construction)*

Course	Section	Course Title	Course Day & Time	Rm #	Instructor
Math xxxx	TBD	TBD (TBD)	TBD, TBD	TBD	TBA

---Course Details---

SENIOR UNDERGRADUATE COURSES

Math 4377 - Advanced Linear Algebra I

Prerequisites:

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

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Math 4378 - Advanced Linear Algebra II

Prerequisites: Math 4377 or Math 6308

Text(s): Linear Algebra, 4th edition, by Friedberg, Insel, and Spence, ISBN 0-13-008451-4
The instructor will cover Sections 5-7 of the textbook. Topics include:

Description: 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.

ONLINE GRADUATE COURSES

MATH 5310 - History of Mathematics

Prerequisites:	Graduate standing
Text(s):	No textbook is required.

This course is designed to provide a college-level experience in history of mathematics. Students will understand some critical historical mathematics events, such as creation of classical Greek mathematics, and development of calculus; recognize notable mathematicians and the impact of their discoveries, such as Fermat, Descartes, Newton and Leibniz, Euler and Gauss; understand the development of certain mathematical topics, such as Pythagoras theorem, the real number theory and calculus.

Aims of the course: To help students
to understand the history of mathematics;
to attain an orientation in the history and philosophy of mathematics;
to gain an appreciation for our ancestor's effort and great contribution;
to gain an appreciation for the current state of mathematics;
to obtain inspiration for mathematical education,
and to obtain inspiration for further development of mathematics.

Description:

On-line course is taught through Blackboard Learn, visit http://www.uh.edu/webct/ for information on obtaining ID and password.

The course will be based on my notes.

Homework and Essays assignement are posted in Blackboard Learn. There are four submissions for homework and essays and each of them covers 10 lecture notes. The dates of submission will be announced.

All homework and essays, handwriting or typed, should be turned into PDF files and be submitted through Blackboard Learn. Late homework is not acceptable.

There is one final exam in multiple choice.

Grading: 40% homework, 45% projects, 15 % Final exam

MATH 5336 - Discrete Mathematics

Prerequisites:	Graduate standing
Text(s):	Discrete Mathematics and Its Applications, Kenneth H. Rosen, seventh edition, McGraw Hill, ISBN-13 978-0-07-288008-3, ISBN-10 0-07-288008-2. Instructor lecture note: Plus: on the Zermelo-Fraenkel Axioms and Equivalence of Sets.
Description:	Syllabus: Chapter 1 (Logic and Proofs): 1.1, 1.3, 1.4 -1.6 , Chapter 2 (Sets and Functions), Chapter 5 (Induction): 5.1-5.3, Chapter 9 (Relations)

The Zermelo Fraenkel Axioms; Equivalence of Sets in form of my notes.

Grading: Midterm is worth 40%, the final is worth 40% and Homework is worth 20%.

For turning in Homework, students need to get the software program Scientific Notebook.

MATH 5341- Mathematical Modeling

Prerequisites:	Graduate standing. Three semesters of calculus or consent of instructor.
Text(s):	TBD

Course Topics:

- Basics of multivariable calculus and linear algebra
- Orthogonality, projection and visualization in higher dimensions
- Least squares approximation and multiple linear regression
- Stability theory associated with steady states and periodic solutions for continuous dynamical systems (systems of ODEs)
- Stability theory associated with steady states and periodic solutions for discrete dynamical systems
- Multiple applications

Description:

Software: Students can use anything they want. I'll provide guidance and sample code using Excel, Matlab and Python.

The syllabus is available at this   **link**.

MATH 5382 - Probability

Prerequisites: Graduate standing and Two semesters of calculus and one semester of linear algebra

Text(s): Probability: With Applications and R | Edition: 1 by Robert P. Dobrow, **ISBN**: 9781118241257

Description: Sample spaces, events and axioms of probability; basic discrete and continuous distributions and their relationships; Markov chains, Poisson processes and renewal processes; applications. Applies toward the Master of Arts in Mathematics degree; does not apply toward Master of Science in Mathematics or the Master of Science in Applied Mathematics degrees.

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 astract algebra. Students may not receive credit for both MATH 4389 and MATH 5389.

GRADUATE COURSES

TBD (TBD) -TBD

Prerequisites: Graduate standing.
Text(s): TBD

Description: TBD