Department of Mathematics

Summer 2017

GRADUATE COURSE SUMMER 2017 - (under construction)

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	11163	Advanced Linear Algebra I (Session #2: 06/05-07/06)	MTWThF, 10am-Noon	TBA	K. Kaiser
Math 4378	12477	Advanced Linear Algebra II (Session #4:07/10-08/09)	MTWThF, 10am-Noon	TBA	A. Török
Math 4389	15957	Survey of Undergraduate Math (Session #3: 06/05-08/26)	(online)	(online)	C. Peters

GRADUATE ONLINE COURSES

Course	Section	Course Title	Course Day & Time	Instructor
Math 5310	16351	History of Mathematics (Session #2: 06/05 - 07/06)	(online)	S. Ji
Math 5336	11703	Discrete Mathematics (Session #2: 06/05 - 07/06)	(online)	K. Kaiser
Math 5378	16353	Axiomatic Geometry (Sesson #4: 07/10-08/09)	(online)	L. Hollyer
Math 5382	14436	Probability (Session #3: 06/05 - 07/26)	(online)	C. Peters
Math 5383	17799	Number Theory (Session #4: 07/10 - 08/09)	(online)	M. Ru
Math 5389	14871	Survey of Mathematics (Session #2: 06/05 - 07/06)	(online)	G. Etgen

GRADUATE COURSES

Course	Section	Course Title	Course Day & Time	Rm #	Instructor

Math xxxx	TBD	TBD (TBD)	TBD, TBD	TBD	TBD

--**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.

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: 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.

Description:

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 5378- Axiomatic Geometry

Prerequisites:	Graduate standing
Text(s):	College Geometry: A Discovery Approach, David Kay, 2nd. Ed. ISBN:9780321046246
Description:	An axiomatic approach to Finite Geometries, Taxicab Geometry, Spherical Geometry, Hyperbolic Geometry and a review of Euclidean Geometry. Does not apply toward the Master of Science in Mathematics of Applied Mathematics.

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 5383 - Number Theory

Prerequisites:	Graduate standing.
Text(s):	Instructor's lecture notes. The reference book will be "Beginning Number Theory" by Neville Robbins, second Edition.
Description:	Number theory is a subject that has interested people for thousand of years. This course is a one-semester long graduate course on number theory. Topics to be covered include divisibility and factorization, linear Diophantine equations, congruences, applications of congruences, solving linear congruences, primes of special forms, the Chinese Remainder Theorem, multiplicative orders, the Euler function, primitive roots, quadratic congruences, and introduction to cryptography . There'll be no specific prerequisites beyond basic algebra and some ability in reading and writing mathematical proofs.

MATH 5389 - Survey of Mathematics

Prerequisites:	Graduate standing
Text(s):	Instructor's notes
Description:	

GRADUATE COURSES

TBA (TBA) -TBA

Prerequisites:	Graduate standing.
Text(s):	TBA
Description:	TBA