Department of Mathematics

Summer 2013

I. GRADUATE COURSE CATALOG

II. GRADUATE COURSE SUMMER 2013

SENIOR UNDERGRADUATE COURSES

Math 4377 - Section# 12040 - Advanced linear algebra I - (06/03/2013 - 07/03/2013 - by K. Kaiser
Math 4378 - Section# 13688 - Advanced linear algebra II - (07/08/2013 - 08/08/2013) - by M. Ru

GRADUATE COURSES

Math 5310 - Online - Section# 17102 - History of Mathematics - (07/08/2013 - 08/08/2013) - by S. Ji
Math 5336 - Online - Section# 12617 - Discrete mathematics - (06/03/2013 - 07/03/2013) - by K. Kaiser
Math 5382 - Online - Section# 16663 - Probabilities - (06/03/2013 - 07/25/2013) - by C. Peters
Math 5383 - Online - Section# 18405 - Number theory - (07/08/2013 - 08/08/2013) - by M. Ru
Math 5389 - Online - Section# 17534 - Survey of Math - (06/03/2013 - 07/03/2013) - by G. Etgen

Math 6395 - Online - Section# 18403 - Fourier analysis with Applications in Medical Imaging - 06/03/2013 - 08/07/2013 - by E. Papadakis
Math 6397 - Online - Section# 18411 - Number Theory - (07/08/2013 - 08/08/2013) - by M. Ru

III. HOW TO REGISTER COURSES

1. Log in to My UH (People Soft)
2. Select "UH Self-Service"
3. Select "Enrollment"
4. Select "Enrollment: add classes" and choose the semester in which you would like to be enrolled.
5. Enter the specific section number for the class.
6. Continue to add more courses if needed and continue to finish the enrollment process.

IV. ARCHIVE OF PREVIOUS COURSES

SENIOR UNDERGRADUATE COURSES

Math 4377 Advanced linear algebra I - () - (Section# 12040)

Time: MoTuWeThFr 10:00AM - 12:00PM - Room: F 154
Instructor: K. Kaiser
Prerequisites:
Text(s):
Description:

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Math 4378 Advanced linear algebra II - () (Section# 13688)

Time: MoTuWeThFr 10:00AM - 12:00PM - Room: SEC 204
Instructor: M. Ru
Prerequisites: Math 4377 or consent of the instructor
Text(s):
Description:

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Math 5310 History of Mathematics - () - (Section# 17102)

Time:	Arrange (online course)
Instructor:	S. Ji
Prerequisites:	Graduate standing
	Instructor's note. No textbook required.
Text(s):	Reference book: Victor Katz, A History of Mathematics: An Introduction, 3rd (or 2nd Ed.), Addison-Wesley, 2009 (or 1998).

Description:

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.

On-line course is taught through Blackboard Vista, visit https://accessuh.uh.edu/login.php for information on obtaining ID and password..

The course will be based on my notes. The textbook is used for extra reading, do homework or do project.

In each week, 10 lecture notes will be posted on Monday in Blackboard Learn, including the weekly homework, reading assignment and essay assignment.

In each week, turn all your homework by the next Monday morning through Blackboard Learn.

All homework, essays or exam paper, handwriting or typed, should be turned into PDF files and be submitted through Blackboard Vista. (In case you are in the campus, you could submit directly to my mailbox in the math department).

There is one final exam in multiple choice.

Grading: 35% homework, 50% projects, 15 % Final exam

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Math 5336 Discrete mathematics - () - (Section# 12617)

Time: Arrange (online course)
Instructor: K. Kaiser
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.
Plus: My own Notes on the Zermelo-Fraenkel Axioms and Equivalence of Sets.
Description: Syllabus: Chapter 1, Chapter 2 (2.1-2.3), Chapter 4 (4.1-4.3), Chapter 8
The Zermelo Fraenkel Axioms; Equivalence of Sets in form of my notes.
More information will become available on my website:
http://math.uh.edu/~klaus

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Math 5382 Probabilities - () - (Section# 16663)

Time: Arrange (online course)
Instructor: C. Peters
Prerequisites:
Text(s):
Description:

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Math 5383 Number Theory - () - (Section# 18405)

Time: Arrange (online course)
Instructor: M. Ru
Prerequisites: None
Text(s): Lecture notes will be provided by instructor.
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.

There are no specific prerequisites beyond basic algebra and some ability in reading and writing mathematical proofs.

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Math 5389 Survey of Math - () - (Section# 17534)

Time: Arrange (online course)
Instructor: G. Etgen
Prerequisites:
Text(s):

Description:

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Math 6395 Fourier analysis with Applications in Medical Imaging - () - (Section# 18403)

Time:	Arrange (online course)
Instructor:	E. Papadakis
Prerequisites:	Math 4332 and 4378 or 4355. In case you have not attended any of these courses or 6320, then it will be good to have attended at least a serious graduate course in Image/Signal Processing at ECE or COMPSC. However, to comprehend all of the mathematical aspects of Fourier Analysis from this course you must have attended either Math 6320-21 or Applicable Analysis.
Text(s):	C.L. Epstein, Introduction to the Mathematics of Medical Imaging, 2nd Edition, SIAM.
Description:	Two online lectures every week which you can attend via Blackboard. No classroom attendance is required, classwork can be submitted online. In addition, we will have office meetings to discuss problems and your questions. The class is open to ECE and CS students as well. If you are an ECE or CS student then you can plan on learning some mathematical techniques and the correct statements of main results. Problems will be diversified into more applied and some more theoretical to suit the needs of a diversified audience. Description of the course: The integral Fourier transform in one and many dimensions, Inversion of the Fourier transform, Square-integrable functions and the Fourier transform, convolution, and linear shift-invariant filters, convolution and regularity, the Dirac-delta function. X-ray tomography and the Fourier slice theorem. Fourier series, the Fourier series of square-integrable functions, the pointwise convergence of Fourier series, Nyquist sampling, digital filters, theory and basic implementation, Magnetic Resonance Imaging as an application of Fourier transform; Positron Emission Tomography overview. Grading: This course will have NO exams. There will be four homework bundles which can be customized to be Matlab based with minimal mathematical derivations or proof based. You can build your own homework from a set of problems designed to to fit a diverse audience of mathematicians, physicists, engineers and computer scientists. Coding will exclusively be Matlab based. Each homework gives 20 points.

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Math 6397 Number Theory - (07/08/2013 - 08/08/2013) - (Section#18411)

Time: Arrange (online course)

Instructor: M. Ru

Prerequisites:

Text(s):

Description:

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