Department of Mathematics

Summary 2012

I. GRADUATE COURSE CATALOG

II. GRADUATE COURSE SUMMER 2012

SENIOR UNDERGRADUATE COURSES

Math 4377 - Section# 12305 - Advanced linear algebra I - (06/04/2012 - 07/06/2012) - by W. Ott
Math 4378 - Section# 14166 - Advanced linear algebra II - (07/09/2012 - 08/09/2012) - by M. Ru

GRADUATE COURSES

Math 5310 - Online - Section# 17864 - History of Mathematics - (07/09/2012 - 08/09/2012) - by S. Ji
Math 5336 - Online - Section# 12886 - Discrete mathematics - (06/04/2012 - 07/06/2012) - by K. Kaiser
Math 5382 - Online - Section# 17330 - Probabilities - (06/04/2012 - 08/08/2012) - by C. Peters
Math 5389 - Online - Section# 18536 - Survey of Math - (06/04/2012 - 07/06/2012) - by G. Etgen
Math 5397 - Online - Section# 18534 - Axiomatic geometry - (06/04/2012 - 08/08/2012) - by L. Hollyer
Math 5397 - Online - Section# 18693 - Intro to Fixed Income - (06/04/2012 - 08/08/2012) - by Bruce Lowe

Math 6397 - Classroom and Online - Section# 18537 - Logic with applications - (06/04/2012 - 07/06/2012) - by K. Kaiser
Math 6397 - Online - Section# 18540 - Advanced calculus on manifolds - (07/09/2012 - 08/09/2012) - by M. Ru
Math 6395 - Online - Section# 18539 - Fourier analysis with Applications in Medical Imaging - (06/04/2012 - 08/08/2012) - by M. Papadakis

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 - (06/04/2012 - 07/06/2012) - (Section# 12305)
Time: MoTuWeThFr 10:00AM - 12:00PM - Room: SEC 101
Instructor: W. Ott
Prerequisites:
Text(s):
Description:

Math 4378 Advanced linear algebra II - (07/09/2012 - 08/09/2012) (Section# 14166)
Time: MoTuWeThFr 10:00AM - 12:00PM - Room: F 154
Instructor: M. Ru
Prerequisites: Math 4377 or consent of the instructor
Text(s):
Description:

GRADUATE ONLINE COURSES

Math 5310 History of Mathematics - (07/09/2012 - 08/09/2012) - (Section# 17864)

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).

| | 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 http://www.uh.edu/webct/ for information on obtaining ID and password.

Description:

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

In each week, from Monday to Thursday, two chapters of my notes will be posted per day in Blackboard Vista. Daily homework and reading assignment may be posted in Blackboard Vista, including projects(essays).

In each week, turn all your homework once by Sunday midnight through Blackboard Vista.

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: 30% homework, 50% projects, 20 % Final exam.

Math 5336 Discrete mathematics - (06/04/2012 - 07/06/2012) - (Section# 12886)

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

Math 5382 Probabilities - (06/04/2012 - 08/08/2012) - (Section# 17330)

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

Math 5389 Survey of Math - (06/04/2012 - 07/06/2012) - (Section# 18536)

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

Math 5397 Axiomatic geometry - (06/04/2012 - 08/08/2012) - (Section# 18534)

Time: Arrange (online course)
Instructor: L. Hollyer
Prerequisites:
Text(s):
Description:

Math 5397 Online Intro to Fixed Income Math - (06/04/2012 - 08/08/2012) - (Section# 18693)

Time: Arrange (online course)
Instructor: Bruce Lowe
Prerequisites: Math 1432
Text(s): Theory of Interest, 3rd edition by Stephen G. Kellison, ISBN-13 9780073382449

Description: Simple interest, compound interest, term structure of interest rates, forward contracts, annuities, amortization, bonds, mortgages, the evolution of the term structure of interest rates, bond trading strategies, contingent claims valuation theory, bond options.

Online Live Class Meeting: Every week on Tuesday from 7:00 to 9:00 p.m. CST. Your attendance is mandatory. Credit for attending the session is earned by answering 60% of the pop-up quiz questions (poppers) correctly. Extra credit will be provided for higher success rates. Students who do not attend the online live meeting shall be given the opportunity to earn credit by completing an additional assignment (note: the additional assignment replaces the poppers and does not replace the regularly assigned homework.)

Homework: Written homework will be collected periodically throughout the semester. Students will submit their written homework by scanning their written work, and then uploading it. Electronic homework will be given weekly, and students will submit their electronic homework by using the associated EMCF form. Instructions are provided on the course homepage.

Attendance Grade: During the class meeting, students will log into CourseWare and answer the poppers using the online EMCF.

Online Quizzes: Regular online quizzes will be available the entire semester. You can attempt each of these quizzes up to 15 times. The highest grade will be used for your score. Access the quizzes by logging into CourseWare at http://www.casa.uh.edu

Exams: There will be a midterm and a final exam (cumulative). Procedures, dates and times for the exams are provided on the course homepage.

Grading Policy: The following weights are assigned:
20% for online quizzes and attendance
20% for homework
30% for midterm
30% for final exam

The following grades will be assigned:
A = 90% and above
B = at least 80% and below 90%
C = at least 70% and below 80%
D = at least 60% and below 70%
F = below 60%

Whenever possible, and in accordance with 504/ADA guidelines, we will attempt to provide reasonable academic accommodations to students who request and require them.

Math 6397 - Logic with applications - (06/04/2012 - 07/06/2012) - (Section# 18537)

Time:	Arrange (online course) and In Classroom: MoTuWeThFr 12:00PM - 2:00PM - Room: AH 301
Instructor:	K. Kaiser
Prerequisites:	Graduate standing
Text(s):	Logic for Applications by Anil Nerode and Richard A. Shore, Second Edition, Graduate Texts in Computer Science, Springer Verlag. (ISBN 0-387-94893-7)
Description:	Propositional Logic, Predicate Logic (Chapter I, 1-6; Chapter II, 1-8). If time permits: Ultraproducts of Relational Systems. More information will become available on my website: http://math.uh.edu/~klaus

Math 6397 Advanced calculus on manifolds - (07/09/2012 - 08/09/2012) - (Section# 18540)

Time:	Arrange (online course)
Instructor:	M. Ru
Prerequisites:	Calculus I, II and III, linear algebra
Text(s):	1. lecture notes 2. Calculus On Manifolds: A Modern Approach To Classical Theorems Of Advanced Calculus, by Michael Spivak ISBN-10: 0805390219. ISBN-13: 978-0805390216
Description:	Differential forms give a simple and coordinate free formalism for multivariable calculus and a point of view to modern analysis and geometry. It is also a useful tool in the study of P.D.E. (for example the formulation of Maxwell's equation becomes much simpler if one uses the notion of differential forms). The purpose of this course is get familiar and comfortable with this modern notion, as well as the notion of manifolds, by discussing the familiar methods from calculus. If time permission, I'll also discuss the surface theory (in differential geometry) through differential forms.

Math 6395 - Fourier analysis with Applications in Medical Imaging - (06/04/2012 - 08/08/2012) - (Section# 18539)

Time:	Arrange (online course)
Instructor:	M. 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.

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: 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.