

A6298

Texas A&M University
Departmental Request for a New Course
Undergraduate + Graduate + Professional
 • Submit original form and attach a course syllabus. •

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 APR 03 2008

GRADUATE STUDIES

1. This request is submitted by the Department of Industrial and Systems Engineering
2. Course prefix, number and complete title of course: ISEN 636 Large-Scale Stochastic Optimization
3. Course description (not more than 50 words): Introduction to models, theory and computational methods for large-scale stochastic optimization including decomposition-coordination algorithms for large-scale mathematical programming such as generalized Benders decomposition and resource-price directive methods; emphasis on practical algorithm implementation and computational experimentation.
4. Prerequisite(s) ISEN 622, STAT 610 and CPSC 602 or approval of Cross-listed with _____
Instructor Cross-listed courses require the signature of both department heads.
5. Is this a variable credit course? Yes No If yes, from _____ to _____.
6. Is this a repeatable course? Yes No If yes, this course may be taken _____ times. Will the course be repeated within the same semester/term? Yes No
7. Has this course been taught as a 289/489/689? Yes No If yes, how many times? 2 Indicate the number of students enrolled for each academic period it was taught. 10 (07C); 11 (05C)
8. This course will be:
 - a. required for students enrolled in the following degree program(s) (e.g., B.A. in history)

 - b. an elective for students enrolled in the following degree program(s) (e.g., M.S., Ph.D. in geography)
M.S., M.Eng., Ph.D. in Industrial Engineering
9. If other departments are teaching or are responsible for related subject matter, the course must be coordinated with these departments. **Attach approval letters.**

10. Prefix		Course #		Title (excluding punctuation)																										
I		SEN		L A R G E - S C A L E S T O C H O P T I M																										
Lect.	Lab	SCH	Subject Matter Content Code										Admin. Unit		Acad. Year		FICE Code													
0	3	0	0	0	3	1	4	3	7	0	1	0	0	0	6	1	6	2	2	0	9	-	1	0	0	0	3	6	3	2
Level																										6				

Approval recommended by:
Guy L. Curry 3-4-08
 Head of Department Date

N.K. Anand 4/2/08
 Chair, College Review Committee Date

Head of Department (if cross-listed course) Date

N.K. Anand 4/2/08
 Dean of College Date

Submitted to Coordinating Board by:

Dean of College Date

Director of Academic Support Services

Date

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 Effective Date

MAR 07 2008

N.K. ANAND

DEPARTMENT OF INDUSTRIAL AND SYSTEMS ENGINEERING

ISEN 636 COURSE SYLLABUS

Number and Title of Course: ISEN 636 Large-Scale Stochastic Optimization

Hours: Theory 3, Practice 0, Total 3, Credits 3

Prerequisites: ISEN 622, STAT 610 and CPSC 602 or instructor's approval

Description of Course: Introduction to models, theory and computational methods for large-scale stochastic optimization. Methods include decomposition-coordination algorithms for large-scale mathematical programming such as generalized Benders decomposition, resource - price directive methods. Practical algorithm implementation and computational experimentation will be emphasized.

Textbook(s):

John R. Birge and Francois Louveaux, *Introduction to Stochastic Programming*, 4th Edition, Duxbury Press, Belmont, CA, 2003.

References:

1. Richard K. Martin, *Large Scale Linear and Integer Optimization: A Unified Approach*, Kluwer, 1999.
2. Journal papers to be assigned by the instructor
3. ILOG CPLEX 8.1, *User's Manual and Reference Manual*, ILOG, S.A. <http://www.ilog.com/>, 2003.

Course Outline by Major Topics and Approximate Time Assigned to Each:

	Hours	
	Th	Pr
1. Introduction to Stochastic Optimization and Applications	3	0
2. Stochastic Programming Models	6	0
3. Computational Experimentation	3	0
4. Large-Scale Decomposition Methods	6	0
5. Stochastic Linear Programming Methods	6	0
6. Sample-Based Methods	6	0
7. Multistage Methods	6	0
8. Stochastic Mixed-Integer Programming Methods	6	0
9. Project Presentations	3	0
Totals	45	0

Grade Basis: Projects 50%
 2 - exams 50%

Date: 2/19/08

Course Instructor: Lewis Ntaimo

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Department of Student Life, Services for Students with Disabilities, in Cain Hall, Room B118, or call 845-1637.

Academic Integrity:

"An Aggie does not lie, cheat, or steal or tolerate those who do." It is the responsibility of students and instructors to help maintain scholastic integrity at the university by refusing to participate in or tolerate dishonesty. (<http://www.tamu.edu/aggiehonor>)