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

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 to exceed 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 instructor

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 this course be repeated within the same semester? □ Yes □ No

7. Has this course been taught as a 489/689? □ Yes □ No If yes, how many times? 2

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)

    IS   EN 6 3 6 L A R G E - S C A L E   S T O C H   O P T I M

    Levl Lab SCH CIP and Fund Code Admin Unit Acad Year FICE Code

    0 3 0 0 0 0 1 4 3 7 0 1 6 0 0 6 1 6 2 2 0 9 - 1 0 0 3 6 3 2

    Approval recommended by: [Signature]

    Date: 5-5-08

    Chair, College Review Committee [Signature]

    Date: 5/6/08

    Dean of College [Signature]

    Date: [Signature]

    Submitted to Coordinating Board by:

    Date: [Signature]

    Effective Date: [Signature]

Questions regarding this form should be directed to Sandra Williams at 845-8201.
Curricular Services – 11/07
DEPARTMENT OF INDUSTRIAL AND SYSTEMS ENGINEERING
isen 636 course syllabus

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

Hours: Lecture 3, Lab 0, Credits 3

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

Course Description: 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.

Learning Outcomes: Students should be able to formulate, devise, and implement algorithms to solve large-scale stochastic programming problems.


References:
2. Journal papers to be assigned by the instructor

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

<table>
<thead>
<tr>
<th>Hours</th>
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<tbody>
<tr>
<td>1. Introduction to Stochastic Optimization and Applications</td>
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<tr>
<td>2. Stochastic Programming Models</td>
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<td>3. Computational Experimentation</td>
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<td>4. Large-Scale Decomposition Methods</td>
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<td>5. Stochastic Linear Programming Methods</td>
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<td>6. Sample-Based Methods</td>
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<td>7. Multistage Methods</td>
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<td>8. Stochastic Mixed-Integer Programming Methods</td>
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<td>9. Project Presentations</td>
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Totals 45

Grade Basis: Projects 50% 2 - exams 50%

Course Instructor: Lewis Ntaimo
Telephone number: 862-4066 Email address: ntaimo@tamu.edu
Office hours: 9-10 AM, M-F Office location: 239C Zachry Engineering Center

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)