ORI 390R.9 Systems Simulation (#19015)

General Information

Instructor: David Morton

Office: ETC 5.118

Telephone: 512-471-4104

Office Hours: Noon-1pm on Mondays and Wednesdays
If you want to see me outside these hours please send me an email.

Email: morton@mail.utexas.edu

Web site: Blackboard

Computer facilities: The METER PC Lab: ETC 2.126. Click on “Virtual Desktops” at
http://www.me.utexas.edu/meter/virtual_desktop.php

Prerequisites: Graduate-level knowledge of probability, statistics and stochastic processes

      Hill, New York, 2007
• W.D. Kelton, R.P. Sadowski and N.B. Swets, Simulation with Arena,

Grading Policy

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Problem Sets</td>
<td>33%</td>
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<tr>
<td>In-Semester Exam (Monday, October 18)</td>
<td>33%</td>
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<tr>
<td>Take-Home Final Exam (Due: Wednesday, December 8, 5pm)</td>
<td>34%</td>
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Problem sets are due at the beginning of class on designated days. On problem sets, you may work with classmates in discussing “how” to solve a problem, but you must write your own solution. (This includes writing your own simulation models in Arena.) Late problem sets will not be accepted. Class attendance is encouraged but not required and is not a factor in the grading policy. Other than your instructor, you may not communicate with any human beings regarding the take-home final exam.
Course Topics

- Discrete-event simulation paradigm (week 1)
- Review of estimators, confidence intervals and hypothesis testing (week 2)
- Uniform random number generation (week 3)
- Nonuniform random number generation (week 4)
- Quadrature, quasi Monte Carlo and Monte Carlo integration (week 5)
- Output analysis for terminating simulations (week 6)
- Output analysis: nonlinear functions of sample means (week 7)
- Comparing alternative system configurations (week 8)
- Output analysis for steady-state simulations (week 9)
- Regenerative steady-state simulation (week 10)
- Input analysis: univariate and multivariate (weeks 11-13)
- Variance reduction (week 14)
- Simulation-optimization (week 15)

References


Proceedings of the Winter Simulation Conferences 1971-present (one for each year).

Additional Information

- The University of Texas at Austin provides upon request appropriate academic adjustments for qualified students with disabilities. For more information, contact the Division of Diversity and Community Engagement, Services for Students with Disabilities, 471-6259, [http://www.utexas.edu/diversity/ddce/ssl/](http://www.utexas.edu/diversity/ddce/ssl/)

- See [http://www.utexas.edu/ogs/student_services/academic_policies/add_drop.html](http://www.utexas.edu/ogs/student_services/academic_policies/add_drop.html) for the policy on adding and dropping a course.

- A Course-Instructor Survey will be administered near the end of the semester.

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By UT Austin policy, you must notify me of your pending absence at least fourteen days prior to the date of observance of a religious holy day. If you must miss a class, an examination, a work assignment, or a project in order to observe a religious holy day, you will be given an opportunity to complete the missed work within a reasonable time after the absence.