

**Reliability theory and modeling**  
**ORI 390R-4, Unique #17985**  
**Spring 2006**

Instructor: Elmira Popova, ETC 5.120  
Time and location: M W 2.00 - 3.30 p.m. ETC 5.132  
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URL: Blackboard  
Office hours: Monday 5-6pm  
Prerequisite: Graduate courses in probability, statistics and stochastic processes.

**Resource Materials**

Required text: System reliability theory: models, statistical methods, and applications,  
by M. Rausand and A.Hoyland,  
John Wiley and Sons, 2004, ISBN: 0-471-47133-X.  
Recent articles and instructor's notes and handouts.

**List of tentative topics**

- Failure models
- Qualitative reliability analysis
- Markov decision processes
- Stochastic dynamic programming
- Reliability of maintained systems
- Lifetime data analysis
- Bayesian reliability analysis

**Grading policy**

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|--------------------------|------|
| • Homeworks              | 30 % |
| • Midterm Exam           | 30 % |
| • Final Exam (take home) | 40 % |
- All exams are open book, open class notes. The final exam will be take home.
  - You will have a homework assigned approximately every other week. Problems sets are due at the *beginning* of class on specified days; late problem sets will not be accepted.

### **Additional Administrative Notes**

The University of Texas at Austin provides upon request appropriate academic adjustments for qualified students with disabilities. For more information, contact the Office of the Dean of Students at 471-6259, 471-4241 TDD or the College of Engineering Director of Students with Disabilities at 471-4382.

An engineering student must have the dean's approval to add or drop a course after the fourth class day of the semester or after the second class day of a summer term. Adds and drops are not approved after the fourth class day except for good cause. "Good cause" is interpreted to be documented evidence of an extenuating non academic circumstance (such as health or person problems) that did not exist on or before the fourth class day.

A Course-Instructor Survey from UT's Measurement and Evaluation Center will be administered near the end of the semester.

Students who violate University rules on stochastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and dismissal from The University. Since dishonesty harms the individual, fellow students, and the integrity of the University, policies on scholastic dishonesty will be strictly enforced.