General Information

Classroom  
Klaus, Room 2447

Time  
Tuesdays and Thursdays, 9:35 – 10:55 AM

Instructor  
Sigrún Andradóttir

Office  
Groseclose (ISyE) Building, Room 328

Phone  
404-894-3933

E-mail  
sa@gatech.edu (please include the course number, ISyE 6650A, ISyE 6650Q, or ISyE 6650QSZ in the subject line)

URL  
www.isye.gatech.edu/faculty/sa

Office Hours  
Tuesdays and Thursdays, 1:45 – 2:45 PM, or by arrangement

Description  
This three-credit course will introduce you to basic techniques for modeling and analyzing industrial systems in the presence of uncertainty. After successfully completing this course, you should:

a. Understand the major capabilities and limitations of probabilistic operations research as applied to problems in industry or government.

b. Be able to recognize, formulate, and analyze simple probability models in practical situations. Understand the assumptions underlying these models and the effects on the modeling process when these assumptions do not hold.

Required Textbook  

Topics  
1. Review of probability (Chapters 1, 2, and 3 of text)
2. Discrete time Markov chains (Chapter 4 and Section 7.6 of text)
3. Poisson processes (Chapter 5 of text)
4. Continuous time Markov chains (Chapter 6 of text)
5. Queueing theory (Chapter 8 of text)
6. Reliability theory (Chapter 9 of text)
7. Introduction to Brownian motion and option pricing (Chapter 10 of text, if there is time)
**Prerequisites**
You must know probability at the level of ISyE 2027.

**References**


**Final Grade**
- Midterm 1 27.5%
- Midterm 2 27.5%
- Final Exam 35%
- Assignments 10%

**Class Attendance**
Attendance in class is strongly recommended. Should you miss class, it is your responsibility to remedy the situation (e.g., to find out what material was covered, obtain copies of handouts, etc.). Finally, the use of electronic devices (including computers and phones) is prohibited in class.

**Assignments**
Homework will be assigned in most weeks as a means to help you understand the concepts and to give you practice in applying them. Please staple multiple sheets together before turning them in.

Unless otherwise indicated, you are encouraged to *discuss* the homework with other students. However, *the work that you hand in must be your own*. In other words, you must do the modeling, calculations, and writing yourself. Also, it is your responsibility to safeguard your work so that other people do not exploit it.
All homework will be due before class starts on the date the homework is due. In general, *late work will not be accepted*. Occasionally, reasonable exceptions may be made. To allow yourself time to get help for unexpected problems, you are urged to complete the assignments in advance of the deadline.

**Regrading Policy**

If we have made a mistake in grading something, we will be happy to correct it. However, if a test is submitted for a regrade, then we reserve the right to regrade the entire test. In other words, it is possible to *lose* additional points by submitting a test for a regrade. In all cases, *requests for a regrade must be made within one week of* when the material to be regraded (homework or exam) was returned to the class.

**Teaching Assistant**

Yuan Wang

**TA Office**

ISyE Studio, ISyE Main/Annex Building, Room 103

**TA E-mail**

ywang489@gatech.edu

**TA Office Hours**

Mondays and Wednesdays, 4:30 – 6 PM

**Scheduling**

Reading and homework assignments will be made in class. However, the following dates have been fixed for examinations:

- Midterm 1  
  Tuesday, September 30, in class
- Midterm 2  
  Tuesday, November 18, in class
- Final  
  Tuesday, December 9, 8:00 – 10:50 AM

All examinations will be closed book, closed notes (with the possible exception of a small card of a specified size), calculators or other electronic devices not permitted, and must be completed alone. Please bring your BuzzCard to all examinations, and leave personal belongings whose use is not permitted (including phones) at home or at the front, left, or right side of the examination room.
Midterms will not be rescheduled under any circumstances. Moreover, individual students will not be able to take the final examination prior to the scheduled time. Special arrangements for a missed examination will only be made at the discretion of the instructor and will require that the examination was missed for an exceptionally good reason and that the student involved provides valid documentation of such a reason promptly. Under no circumstances will interviews, car problems, or other travel related problems be accepted as valid reasons for missing an examination. Similarly, oversleeping and confusion about the examination date are not valid reasons for missing an examination. Medical excuses will only be considered if a letter from a physician documenting a serious condition and dated no later than the examination date is provided.

Expectations

This course will operate according to the student-faculty expectations available at [www.catalog.gatech.edu/rules/22.php](http://www.catalog.gatech.edu/rules/22.php). I reserve the right to assign homework on new material covered during the week preceding final examinations, see [www.catalog.gatech.edu/rules/12c.php](http://www.catalog.gatech.edu/rules/12c.php).

Honor Code

Students in this class are expected to abide by the Georgia Tech Honor Code and avoid any instances of academic misconduct, including but not limited to: (i) possessing, using, or exchanging improperly acquired written or verbal information in the preparation of homework or for examinations, (ii) substitution for, or unauthorized collaboration with, a student in the commission of academic requirements, and (iii) submission of material that is wholly or substantially identical to that created or published by another person or persons. The complete text of the Honor Code may be found on the web at [www.honor.gatech.edu](http://www.honor.gatech.edu).

All academic violations will be dealt with according to the Georgia Tech Honor Code. This includes the submission of work other than your own and also cheating off of another person’s homework or examination. Moreover, unauthorized use of any solutions manuals or previous semester course materials, such as tests, homework, projects, solutions, etc., is prohibited in this course, and will be considered a violation of the Honor Code. For any questions involving these or other Honor Code issues, please consult me or [www.honor.gatech.edu](http://www.honor.gatech.edu).

Distance Learning

Deadlines for distance learning students will be one week later than for other students (use eastern standard time). This applies to both homework and exams.