CAS MA 583 SYLLABUS

Introduction to Stochastic Processes

July 1 - August 8, 2019

Mon./Tues./Wed./Thurs. 9-11 am

Location: COM 217

Instructor:
Jingwei Ma
majw@bu.edu
Course Website: http://math.bu.edu/people/majw/MA583_2019/MA583_2019summer.html
Office : MCS B44, 111 Cummington Street
Office Hours : Wed. 2pm - 5pm or by appointment

Course Description:
Basic concepts and techniques of stochastic process as they are most often used to construct models for a variety of problems of practical interest. The course will cover basic stochastic processes such as simple random walk, Markov chains, Martingales, Poisson processes, and Brownian motion as well as applications like birth and death processes, queuing theory, renewal processes, and reliability.
Prerequisite(s): (CAS MA 581 or CAS MA 381) or consent of instructor. The students are required to have a solid understanding of basic probability and calculus.

Required Text(s):

- *An Introduction to Stochastic Modeling*, 4$^{\text{th}}$ edition, Mark Pinsky and Samuel Karlin, Academic Press.

Recommended Text(s):

- *A First Course in Stochastic Processes*, 2$^{\text{nd}}$ edition, Howard M. Taylor and Samuel Karlin, Academic Press.

- *Stochastic Processes*, 2$^{\text{nd}}$ edition, S.M. Ross, John Wiley & Sons, New York.

We plan to cover chapter 2-9 in the required textbook depending on how the lecture goes.

Homework:
Homework for practice and for credit will be assigned **every two lectures**, collected weekly on Thursday lectures and returned on Monday lectures.
You may discuss homework problems with classmates and the tutor in the Tutoring room MCS B 24 (this is also a good place to meet with classmates). However, (AND THIS IS VERY IMPORTANT), when you write up your final copy of your homework, you must work

alone. This will guarantee that you understand the solution–it is very easy to tell when a solution has been copied, so be sure to write up you solutions (showing YOUR work) independently, once you know how to do the problem. If you get help from other, please list who they work with on their paper, including the tutoring room tutor.

Lowest homework score will be dropped. **NO LATE HW WILL BE ACCEPTED FOR ANY REASON!**

Exam:

There will be an in-class midterm and an in-class final for this course. Each will take 2 hours. **Midterm** exam will be hold on **Jul. 22th (Monday)** , and **Final** exam will be hold on **Aug. 8th (Thursday)**. **NO** calculators, textbooks, notebooks, formula sheets or phones during the exam. Formulas will be provided on the exam. Make-up exams will be offered if you have emergency, and tell me in advance. Note that there will be one problem numbered as "Last problem" for extra credits in the both midterm and final exam. However, it is particularly difficult, so only attempt it if you have completed the other problems as best you can.

Grade Policies:

Homework	20%
Midterm Exam	35%
Final Exam	45%

Communications:

Communications are very important!! If you have any emergency or questions about this course, please feel free to email me or visit me during office hours. Homework and lecture outlines will be updated on course website.

University Policy:

If you observe a work restricted religious holiday during the term, please let me know immediately and arrangements will be made in accordance with University Policy.

Academic Conduct:

Students are responsible to read and understand the provisions of the CAS Academic Conduct Code. Cheating is absolutely not allowed, otherwise, you will be referred to University Academic Standards Committee for disciplinary.

Important Dates:

Date	Milestones
Jul. 1 Mon	Class Begins.
Jul. 4 Thu	Holiday, classes suspended.
Jul. 9 Tue	**Last day to drop without a 'W' grade.** **Last day to register/add courses/audit.**
Jul. 12 Fri	Substitute schedule of classes (Thursday schedule).
Jul. 22 Mon	**Midterm Exam.**
Jul. 24 Wed	**Last day to drop with a 'W' grade.**
Aug. 8 Thu	**Final Exam.**