STOCHASTIC MODELS FOR FINANCIAL ENGINEERING: IEOR 4701.

INSTRUCTOR: Jose H. Blanchet ( jb2814@columbia.edu ).

Office hours: TBA Mudd, 340.

TA 1: TBA

TA 2: TBA

TOPICS:

1) Probability review and simple models.

2) Discrete time Markov chains.

3) Continuous time Markov chains.

4) Martingales.

5) Brownian motion and SDEs.

The material is based on lecture notes. Students are expected to read lecture notes in advance posted under "pre-lecture notes". Additional notes after each class are also posted under "post-lecture notes". For the exam study from "post-lecture notes".

Additional secondary source: M. Steele "Stochastic Calculus and Applications to Finance" and F. Lawler's "Introduction to Stochastic Processes".

Exam: TBA, in class (covers probability review, discrete time Markov chains and some continuous time Markov chains).

Final exam: TBA (Martingales, Brownian motion, SDEs).

EXAM POLICY: These are closed books and notes exams. Only two sheets of paper with information in both sides (i.e. four pages only) are allowed in each exam. The information can be anything you want.

GRADING: Midterm 40%, Final 50%, Assignments 10%.

There will be 7-8 assignments. We will drop the lowest score and compute the grade based only on the 6 highest scores.