STAT553 – Fall 2015
Probability and Measure I

Instructor: Xiaohui Chen (email: xhchen@illinois.edu). Office: 104A Illini Hall.

Class: Lecture AL1: TR 12:30am – 1:50pm, 111 Gregory Hall.

Office Hours: TR 2:00pm – 3:00pm, 104A Illini Hall.

Course TA: Srijan Sengupta (ssengpt2@illinois.edu).

Course Website:
- Course progress, tentative schedule and announcement will be updated at: `http://publish.illinois.edu/xiaohuichen/teaching/stat553/`
- Homework: Compass 2g.[1]

Text: Sidney I. Resnick. *A Probability Path.* Birkhäuser.

Prerequisite: MATH447 Real Variables.

Description: This is an introductory course to measure-theoretic probability. Tentative topics to be covered are:
- Basic set theory
- Construction of probability space and measure, extension theorems
- Random variables, measurable functions
- Independence, zero-one laws
- Integration, monotone and dominated convergence, Fatou's lemma, Fubini's theorem
- Convergence of random variables
- Law of large numbers

Homework: There will be **6** homework assignments. Homework submission to the drop box STAT553 in the Illini Hall on the due date. **No late homework** will be accepted for grading and missing homework will be a zero mark.

Exams: One midterm exam and one comprehensive final exam. The exam dates are:
- Midterm exam: **R, Oct. 8, 12:30am – 1:50pm in class.**
- Final exam: **W, Dec. 16, 7:00pm – 10:00 pm.** Location: TBD.

A missing midterm exam will result a zero mark. If you are unable to make the exam, you must contact the instructor at least **one week** before the exam. All excuse must be made for a legitimate reason (e.g. illness with a doctor's note). There will be **NO MAKE-UP** midterm exams. However, grading weight for a missing midterm exam based on a legitimate reason will be imputed by your the final exam score.

Grading: Your grade for this course will be computed as follows[2] :
- **Homework:** 30%
- **Midterm:** 20%
- **Final exam:** 50%

[1] `https://compass2g.illinois.edu/webapps/login/`

[2] As an example: if you have: 60 out of 70 points for the homework, 40 out of 50 points for the midterm, and 80 out of 100 points for the final exam, then your grade for this course is: $60/70 \times 30\% + 40/50 \times 20\% + 80/100 \times 50\% = 81.71\%$.