ST509 Computational Statistics

Syllabus

Seung Jun Shin

Department of Statistics
Korea University

E-mail: sjshin@korea.ac.kr

Class Information

- Hours: 3:30 – 4:45pm M/W

- Location: 508 Pol. Sci. & Econ. Build. (PSEB,)

- Instructor: Seung Jun Shin

  – Email: `sjshin@korea.ac.kr`

  – Office: 309 PSEB.

  – Office Hours: By appointment via e-mail.

What We Learn?

- This course covers

  - Solving Linear Equation

    - Matrix Calculation
    - Matrix Decomposition
    - Linear Regression

  - Optimization

    - Generalized Linear Model
    - Penalized Regression
    - Kernel Machine

  - Integration

    - Numerical Integration
    - Markov Chain Monte Carlo (MCMC)

  - Simulation

    - Supsampling / Bootstrap / Permutation

Homework

- Three homeworks will be assigned.
- Due date is a week after each homework assigned.
- Students must submit the homework <u>BEFORE</u> the class.
- Extensions will <u>NOT</u> be granted and any assignment not submitted on time will receive a zero.

Exam

- Midterm
  - In-class coding exam. (Bring your own laptop if you have)
  - Students who are unable to attend an exam for a legitimate unavoidable reason may take a make-up exam only if the student provides suitable documentation of the absence.
- Final
  - Takehome Exam
  - Write a short simulation paper

Grade

- A+ $(0 \sim 5\%)$
- A0 $(5 \sim 50\%)$
- B+ $(50 \sim 80\%)$
- B0 $(80 \sim 100\%)$
- C+ or lower (means "Fail" in grad. courses)

Software

- R (www.r-project.org)
- Editor: R-studio (www.rstudio.com)