Stochastic Processes for Networking (網路之隨機程序)

Instructor: Jung-Chun Kao (高榮駿)

Course outline

- This is an applied math course for networking
- This course covers
  - Preliminaries (ch 1-3)
    - Random variables and stochastic processes
    - Probability and expectations
    - Probability inequalities
  - Poisson processes (ch 5)
  - Renewal processes (ch 7)
  - Discrete-time Markov chains (ch 4)
  - Continuous-time Markov chains (ch 6)
  - Generating random variables for simulation (ch 11)
    - This is optional if we have enough time

Prerequisite

- Required
  - Engineering mathematics
    - Calculus, probability, linear algebra, differential equations, …
- Recommended but not required
  - Queueing theory

Logistics

- Instructor: Jung-Chun Kao (高榮駿)
  - Email: jungchuk@cs.nthu.edu.tw
  - Office hour: Thursdays 4:30 – 5:30pm
- TAs:
  - See the class webpage for
    - TAs' names
    - office hours
    - emails
- Meeting times
  - Tuesdays 3:30 – 5:20pm, 台達館 104
  - Thursdays 3:30 – 4:20pm, 台達館 104
- Class webpage
  - eeclass (https://eeclass.nthu.edu.tw)
  - My personal homepage (http://www.cs.nthu.edu.tw/~jungchuk)

Textbook and references

- Textbook
  - Sheldon M. Ross, "Introduction to Probability Models", Academic Press
    - 10th or 12th Edition
- References
  - S. M. Ross, "Stochastic Processes", John Wiley & Sons, Inc., 1996
  - Robert G. Gallager, "Discrete Stochastic Processes", Kluwer

Tentative grading policy

- Homework: 10%
  - No late homework is accepted!
- Exams: 65%
  - 1 midterm exam (4/19) and 1 final exam (6/14)
  - No make-up!
- Quizzes: 10%
  - No make-up!
  - Move to exams, if distance learning is enforced or quizzes are canceled
- Participation: 15%