10920EECS303003 Probability (機率)

Spring 2021

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Units: 3
Lecture hours: **T5,T6,R5,R6**
Classroom: **Delta 211**
Course website: http://www1.ee.nthu.edu.tw/cychi/teaching/courses.php
Office hours: to be determined

Probability is essential in physical sciences, statistics, actuarial science, business and finance, operations research, electrical engineering (EE), and computer science (CS), where decision making/inferences in an uncertain or probabilistic environment is involved such as insurance, meteorology, urban planning and pharmaceuticals. The goal of for this undergraduate course is also to equip you with the foundation of probability for advanced subjects on random (or stochastic) processes, signal detection and estimation, and signal modeling, that are core in communications engineering and signal processing (EE), and queuing theory that are pervasive in networking (CS).

Outline:

1. Axioms of Probability. (ch 1)
2. Combinatorial Methods. (ch 2)
3. Conditional Probability and Independence. (ch 3)
4. Distribution Functions and Discrete Random Variables. (ch 4&5)
5. Continuous Random Variables and Special Continuous Distributions. (ch 6&7)
6. Bivariate/Multivariate Distributions. (ch 8&9)
7. Expectations and Variances. (ch 10)
8. Sums of Independent Random Variables and Limit Theorems. (ch 11)

Textbook:

Saeed Ghahramani, Fundamentals of Probability with Stochastic Processes, 4th Edition, CRC Press, Boca Raton, FL,2019. (滄海書局 (04) 27088787-1188)

Reference:

Henry Stark, and John W. Woods, *Probability, Statistics, and Random Processes for Engineers*, 4th Edition, Pearson Education, 2012. (高立圖書 02-2290-0318 分機 222)

Grading:

- Mid-term exam: **50%**; written examination in class.
- Final exam: **50%**; written examination in class.
- Homework: 0**%**;