

# Course Syllabus

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# Main

- **Instructor:** Weerachart Kilenthong
- **Course Schedule:** Saturday 9.00 am – 12.00 pm Room 5603
- **Email :** tee@riped.utcc.ac.th
- **Website:** riped.utcc.ac.th/tee/teaching/sm512
- **Teaching Assistance:** Sartja Duangchaiyoosook and Wasinee Junton
- **Email:** kei@riped.utcc.ac.th and wasinee\_jun@riped.utcc.ac.th
- **Course Objective:**
  - ▶ The aim of this course is to give master-level students an introduction to principles, theories, and tools in advanced statistical theory.
  - ▶ Students will also learn how to apply statistical models with real data using R software.
- **Required Textbooks:**
  - DeGroot, Morris H. and Mark J. Schervish. 2012. Probability and Statistics. 4th edition: Preason. [DS]
  - Hogg, Robert V., Allen T. Craig and Joseph W. McKean. 2005. Introduction to Mathematical Statistics. 6th edition, Pearson. [HCM]

# Course Description

- The course will be carried out in 15 sessions, totalling 45 lecture hours.
- This course studies basic concepts of probability and statistical theory relevant to financial engineering.
- The topics include
  - ▶ Basic probability and Conditional probability,
  - ▶ Random variables and Their distributions,
  - ▶ Expectation and Moments,
  - ▶ asymptotic theory and properties of large random samples, point estimation and maximum likelihood estimation,
  - ▶ asymptotic theory and properties of large random samples, point estimation and maximum likelihood estimation, sampling distributions of estimators,
  - ▶ Advanced topics may include Markov chains both in discrete and continuous time models, basic Bayesian estimation methods and Kalman filtering

# Grades and Requirements

- Grades will be based on the following weights:
  - ▶ 30 % Assignment(s)
  - ▶ 30 % Mid-Term Exam
  - ▶ 40 % Final Exam
- Tentative Grading Range:
  - ▶ 85 – 100 A
  - ▶ 80 – 84 B+
  - ▶ 70 – 79 B
  - ▶ 65 – 69 C+
  - ▶ 55 – 64 C
  - ▶ 50 – 54 D+
  - ▶ 40 – 49 D
  - ▶ 39 or less F