The Hong Kong University of Science & Technology
Department of Industrial Engineering & Decision Analytics

IEDA 2540   Statistics for Engineers
Semester   Spring 2024

Instructor

Wei YOU
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Office hours: Wednesday 16:30-17:30 (by appointment)

Teaching Assistants

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Class Schedule

Lecture: Wednesday and Friday, 15:00-16:20.
Tutorial: Tuesday, 18:00-19:50. Thursday, 18:00-19:50.

Learning outcomes

1. Able to understand basic ideas and elements of modern statistics, including estimation theory, hypothesis testing, regression models.
2. Able to implement statistical models in Python.
3. Able to conduct empirical analysis of real-world data.
4. To be prepared for more advanced statistical courses, such as machine learning, data mining and Bayesian statistics.
5. Able to recommend statistical solutions based on quantitative data analysis.

Textbook

No textbooks required. The lecture slides are self-contained.
Reference book:
   Douglas C. Montgomery and George C. Runger, Applied Statistics and Probability for Engineers, 6th Edition.

Assessment
Homework (30%)
Midterm Exam (30%)
Final Exam (30%)

1. **Homework:**
   a. One homework assignment per topic. Each has 3-5 questions and 0-2 coding problems.
   b. All homework will be submitted online via Canvas.
   c. Any homework that is not submitted after the deadline will receive a zero grade.
   d. Each student will have a one-time option to extend the homework deadline by 48 hours.
   e. You may discuss homework with classmates, in which case you have to clearly indicate on your homework with whom you have discussed it. Copying is strictly prohibited.
2. Midterm exam:
   a. 2 hours.
   b. covers materials taught in the first half of the semester. Only one A4-size, double-sided and hand-written aid sheet is allowed.
3. Final exam:
   a. 2 hours.
   b. covers all materials. Only two A4-size, double-sided and hand-written aid sheet is allowed

List of Topics (Tentative)
1. Descriptive statistics
2. Useful distributions in statistics
3. Population and random sample
4. Estimation of a parameter
5. Interval estimation
6. Hypothesis testing
7. Analysis of Variance (ANOVA)
8. Linear regression