| Course Plan | | |
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| **Semester 2** | **Contents and Method of Course** | **Goals** |
| 1st week | Chapter 1:<br>Probability, expected value, and conditional probability | Students can explain basic concepts on probability and calculate probabilities and conditional probabilities. |
| 2nd week | Chapter 1:<br>Repeated trials and Bayes' theorem | Students can calculate probabilities for repeated trials. They can explain Bayes' theorem and use it to find conditional probabilities. |
| 3rd week | Chapter 2:<br>One-dimensional data analysis | Students can explain the terms for data analysis and calculate various statistical quantities for one-dimensional data |
| 4th week | Chapter 2:<br>Two-dimensional data analysis | Students can explain the terms for data analysis and calculate various statistical quantities for two-dimensional data |
| 5th week | Chapter 3:<br>Random variable and probability distribution<br>Binomial and Poisson distributions | Students can explain the terms for probability distribution and calculate statistical quantities for various probability distributions including binomial and Poisson distributions |
| 6th week | Chapter 3:<br>Continuous probability distribution<br>Mean and variance of continuous random variable | Students can explain the terms for continuous probability distribution and calculate various statistical quantities of continuous random variable |
| 7th week | Review session | Week 1-6 |
| 8th week | School Event | |
| 9th week | Midterm examination | |
| 10th week | Chapter 3:<br>Normal distribution<br>Relationship between binomial and normal distributions | Students can explain the terms for normal distribution and relationship between binomial and normal distributions and calculate various statistical quantities for normal distribution |
| 11th week | Chapter 3:<br>Functions of random variables<br>Population and sample<br>Statistics and sampling distributions<br>Various probability distributions | Students can explain the terms for functions of random variables, population and sample, and statistics and sampling distributions and calculate related statistical quantities<br>Students can explain various probability distributions including chi-square, t, and F distributions and calculate related statistical quantities |
| 12th week | Chapter 4:<br>Point estimation<br>Interval estimation for population mean (1) | Students can explain what the point and interval estimations are and apply them for population mean when population variance is known |
| 13th week | Chapter 4:<br>Interval estimation for population mean (2)<br>Interval estimation for population variance | Students can apply the interval estimation for population mean and variance when population variance is unknown |
| 14th week | Chapter 4:<br>Interval estimation for population proportion | Students can apply the interval estimation for population proportion |
| 15th week | Chapter 4:<br>Hypothesis and testing<br>Test for population mean | Students can explain hypothesis testing and apply it for population mean |
| 16th week | Chapter 4:<br>Test for population variance<br>Test for equal variance<br>Test for difference in population means<br>Test for population proportion | Students can apply hypothesis testing for population variance, equal variance, difference in population means, and population proportion |
| 17th week | Review session | Week 10-16 |
| 18th week | Final examination | |
| 19th week | Final examination<br>Chapter 1: | |
| 20th week | Return answer sheets, review the semester, and give feedbacks | |