

END 2992 Statistics Syllabus

[2023-2024 Spring Semester]

Instructor Information

Instructor

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Office Location & Hours

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Lecture Hours: Wednesday 16:00-19:00

Office Hours: Wednesday 15.00-16.00

Thursday 14.00-15.00

General Information

Description

The aim of the course is to equip students with the skills necessary to employ probabilistic and statistical understanding necessary for implementing mathematical and strategic decision-making strategies in engineering.

Lecture contents are Sampling theory, sampling distributions of means, sampling distribution of variances, t distribution, chi-squared distribution, F distribution, estimation theory, classical theory of estimation, tests of hypotheses, goodness of fit test, test for independence, test for homogeneity, linear regression and correlation, Analysis of variance

Course Materials

WALPOLE R.E., MYERS R.H., MYERS S.L. YE K.E., Probability and Statistics for Engineers and Scientists, 9th Edition, Prentice Hall, 2011.

Expectations and Goals

There will be a comprehensive one mid-term exam (8th week) and one quiz (14th week). Quiz includes R implementations. I advise you to obtain R as soon as possible.

Grading

1 st midterm	%40
Quiz	%20
Final Exam	%40

Course Schedule

Week	Topics
[Week 1]	Sampling distributions, sampling distributions of means
[Week 2]	Sampling Distribution of difference or sum of two means
[Week 3]	Sampling distribution of proportions, sampling distribution of difference or sum of two proportions
[Week 4]	Sampling distribution of variances, chi-squared distribution, degree of freedom
[Week 5]	t distribution, F distribution
[Week 6]	Estimation theory, estimation of means, Standard error of a point estimate, tolerance limits
[Week 7]	Estimation of the difference between two means
[Week 8]	1 st midterm
[Week 9]	Tests of hypotheses
[Week 10]	Type 1 and type 2 errors, tests on a single mean, tests on two means
[Week 11]	Tests concerning proportions, testing the difference between two proportions, tests concerning variances
[Week 12]	Goodness-of-Fit Tests, Test for independence, test for homogeneity, testing for several proportion
[Week 13]	Linear Regression and Correlation
[Week 14]	Simple Linear Regression. Analysis of Variance: ANOVA