

# COURSE DETAIL

## LINEAR STATISTICAL ANALYSIS

**Country**

Hong Kong

**Host Institution**

University of Hong Kong

**Program(s)**

University of Hong Kong

**UCEAP Course Level**

Upper Division

**UCEAP Subject Area(s)**

Statistics

**UCEAP Course Number**

123

**UCEAP Course Suffix****UCEAP Official Title**

LINEAR STATISTICAL ANALYSIS

**UCEAP Transcript Title**

LINEAR STAT ANALYS

**UCEAP Quarter Units**

5.00

**UCEAP Semester Units**

3.30

## Course Description

The analysis of variability is mainly concerned with locating the sources of the variability. Many statistical techniques investigate these sources through the use of linear models. This course presents the theory and practice of these models. Topics include: simple linear regression: least squares method, analysis of variance, coefficient of determination, hypothesis tests and confidence intervals for regression parameters, prediction; multiple linear regression: least squares method, analysis of variance, coefficient of determination, reduced versus full models, hypothesis tests and confidence intervals for regression parameters, prediction, polynomial regression; one-way classification models: one-way ANOVA, analysis of treatment effects, contrasts; two-way classification models: interactions, two-way ANOVA for balanced data structures, analysis of treatment effects, contrasts, randomized complete block design; universal approach to linear modeling: dummy variables, multiple linear regression representation of one-way and two-way (unbalanced) models, ANCOVA models, concomitant variables; regression diagnostics: leverage, residual plot, normal probability plot, outlier, studentized residual, influential observation, Cook's distance, multicollinearity, model transformation.

### Language(s) of Instruction

English

### Host Institution Course Number

STAT3600

### Host Institution Course Title

LINEAR STATISTICAL ANALYSIS

### Host Institution Course Details

### Host Institution Campus

### Host Institution Faculty

### Host Institution Degree

**Host Institution Department**

Statistics & Actuarial Science

**Course Last Reviewed**

2024-2025

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