

THE EDUCATION UNIVERSITY OF HONG KONG

Course Outline

Part I

Programme Title	: Bachelor of Social Sciences (Honours) in Psychology/ All Undergraduate Programmes
Programme QF Level	: 5
Course Title	: Statistical Methods in Psychology II
Course Code	: PSY3033
Department	: Psychology
Credit Points	: 3
Contact Hours	: 39
Pre-requisite(s)	: Statistical Methods in Psychology I
Medium of Instruction	: EMI
Course Level	: 3

Part II

The University's Graduate Attributes and seven Generic Intended Learning Outcomes (GILOs) represent the attributes of ideal EdUHK graduates and their expected qualities respectively. Learning outcomes work coherently at the University (GILOs), programme (Programme Intended Learning Outcomes) and course (Course Intended Learning Outcomes) levels to achieve the goal of nurturing students with important graduate attributes.

In gist, the Graduate Attributes for Sub-degree, Undergraduate, Taught Postgraduate, Professional Doctorate and Research Postgraduate students consist of the following three domains (i.e. in short "PEER & I"):

- Professional Excellence;
- Ethical Responsibility; &
- Innovation.

The descriptors under these three domains are different for the three groups of students in order to reflect the respective level of Graduate Attributes.

The seven GILOs are:

1. Problem Solving Skills
2. Critical Thinking Skills
3. Creative Thinking Skills
- 4a. Oral Communication Skills
- 4b. Written Communication Skills
5. Social Interaction Skills
6. Ethical Decision Making

7. Global Perspectives

1. Course Synopsis

This course is designed to study advanced statistical methods in educational, psychological and related fields. Topics cover simple and multiple regression, simple and factorial analysis of variance, repeated-measure designs, and non-parametric approaches to data. Emphases of the course are evaluating scientific hypothesis using appropriate statistical methods, gaining deeper understanding of the nature of data, and the nature of relationships among and between variables in real life. The exercise session will give students the opportunity to gain “hands-on” experience in working with quantitative problems and effectively communicating the statistical results with other professionals.

2. Course Intended Learning Outcomes (CILOs)

Upon completion of this course, students will be able to:

- CILO₁ Understand the key concepts, assumptions, and procedures of statistical methods in psychological studies;
- CILO₂ Distinguish various types of statistical methods, select and conduct appropriate procedures to investigate specific research questions, with the help of computer software such as SPSS;
- CILO₃ Interpret and draw inference of the results accurately to explain the research questions.
- CILO₄ Report statistical information in a professional manner

3. Content, CILOs and Teaching & Learning Activities

In each meeting, a lecture will be given. Several computer tutorials of the software SPSS for data analysis will be given during the semester. Homework assignments of statistics exercises and computer exercises will be required.

Course Content	CILOs	Suggested Teaching & Learning Activities
Review of Basic Statistics	CILO ₁₋₄	Lecture; using SPSS to conduct data analysis
Multiple regression	CILO ₁₋₄	Lecture; using SPSS to conduct data analysis
Simple analysis of variance	CILO ₁₋₄	Lecture; using SPSS to conduct data analysis
Factorial analysis of variance	CILO ₁₋₄	Lecture; using SPSS to conduct data analysis
Repeated-measure designs	CILO ₁₋₄	Lecture; using SPSS to conduct data analysis
Mixed-designs	CILO ₁₋₄	Lecture; using SPSS to

		conduct data analysis
Analysis of covariance	CILO ₁₋₄	Lecture; using SPSS to conduct data analysis
Resampling and nonparametric approaches to data	CILO ₁₋₄	Lecture; using SPSS to conduct data analysis

4. Assessment

Assessment Tasks	Weighting (%)	CILO
a. Online Class Exercises Students are asked to complete an online exercise at the end of each topic. Each exercise is composed of multiple choice and short answer questions, which help students to check their learning progress of each topic.	20%	CILO ₁₋₃
b. Take-home coursework The coursework composes of practical statistics questions which require students to apply statistical software program to conduct data analysis and make interpretation of statistical output. It helps students to master the basic principles and core knowledge of statistical methods and learn interpreting and reporting statistical results in a professional manner.	35%	CILO ₁₋₄
c. Final Quiz It is an open-book quiz and is composed of both multiple choice and short answer questions. It aims to assess students' understanding of the statistical concepts taught in the course and their ability to apply the statistical methods to address research questions.	45%	CILO ₁₋₃

5. Use of Generative AI in Course Assessments

Please select one option only that applies to this course:

☐ **Not Permitted:** In this course, the use of generative AI tools is not allowed for any assessment tasks.

☒ **Permitted:** In this course, generative AI tools may be used in some or all assessment tasks. Instructors will provide specific instructions, including any restrictions or additional requirements (e.g., proper acknowledgement, reflective reports), during the first lesson and in relevant assessment briefs.

6. Required Text(s)

Field, A. (2024). *Discovering statistics using IBM SPSS Statistics* (6th ed.). Sage Publications, Inc.

7. Recommended Readings

Aron, A., Aron, E. N., Coups, E. J., & Cooley, E. (2022). *Statistics for psychology* (7th ed.). Pearson Education, Inc.

Hancock, G. R., & Mueller, R. O. (Eds.) (2018). *The reviewer's guide to quantitative methods in the social sciences* (2nd ed.). Routledge.

Jose, P. E. (2013). *Methodology in the social sciences. Doing statistical mediation and moderation*. Guilford Press.*

Myors, B. & Murphy, K. R.(2023). *Statistical power analysis: A simple and general model for traditional and modern hypothesis tests* (5th ed.). Routledge.

8. Related Web Resources

IBM SPSS Software

- <https://www.ibm.com/analytics/us/en/technology/spss/>

G*Power: Statistical Power Analyses for Windows and Mac

- <https://www.gpower.hhu.de/>

Claremont Graduate University Web Interface for Statistics Education

- <http://wise.cgu.edu/>

Consortium for the Advancement of Undergraduate Statistics Education

- <http://www.causeweb.org/resources/>

John C. Pezzullo catalogue of online statistical calculators and texts

- <http://statpages.org/>

Daniel Soper Statistics Calculators

- <http://www.danielsoper.com/statcalc/default.aspx>

VassarStats Website for Statistical Computation

- <http://vassarstats.net/>

9. Related Journals

American Statistician

Applied Statistics

Behavior Research Methods

British Journal of Mathematical & Statistical Psychology

Communications in Statistics-Theory and Methods

Computational Statistics & Data Analysis

Educational and Psychological Measurement

Journal of Applied Statistics

Journal of Computational and Graphical Statistics

Journal of Educational and Behavioral Statistics.

Journal of the American Statistical Association

Journal of the Royal Statistical Society

Multivariate Behavioral Research

Psychometrika

Psychological Methods

Statistica Sinica

Statistical Science

The Annals of Statistics

10. Academic Honesty

The University upholds the principles of honesty in all areas of academic work. We expect our students to carry out all academic activities honestly and in good faith. Please refer to the *Policy on Academic Honesty, Responsibility and Integrity* (<https://www.eduhk.hk/re/uploads/docs/000000000016336798924548BbN5>). Students should familiarize themselves with the Policy.

11. Others

Nil