

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 I
Course Code	: PSY2032
Department	: Psychology
Credit Points	: 3
Contact Hours	: 39
Pre-requisite(s)	: Nil
Medium of Instruction	: EMI
Course Level	: 2

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 aims at introducing the basic concepts and process for statistical data analysis in educational and psychological studies. Contents include backgrounds prior to research design and analysis, central tendency and dispersion, normal distribution, hypothesis testing, tests for means, power and effect size, categorical data analysis and correlation test. The aim of this course is to provide fundamental concepts for psychological statistical methods, and the ways to conduct hypothesis testing for mean differences and relationships between variables. The use of statistics in everyday life and the use of statistics to help building a more informed society will be highlighted. Three kinds of computer software will be taught for data analysis, including SPSS, Excel and G*Power.

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 Excel, SPSS and G*Power;
- CILO₃ Interpret and draw inference of the results accurately to explain the research questions.

3. Content, CILOs and Teaching & Learning Activities

In each meeting, a lecture will be given. Several computer tutorials of the software SPSS, Excel and G*Power 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
Basic concepts in statistics	CILO ₁	Lecture
Descriptive statistics	CILO ₁	Lecture; online concept checking questions; using Excel or SPSS to conduct data analysis
Normal distributions	CILO ₁	Lecture; online concept

		checking questions; using Excel or SPSS to conduct data analysis
Sampling distribution and hypothesis testing	CILO ₁₋₃	Lecture; online concept checking questions; video, simulations and demonstrations; using Excel or SPSS to conduct data analysis
Probability	CILO ₁₋₂	Lecture; online concept checking questions; using Excel or SPSS to conduct data analysis
Categorical data analysis and Chi-square	CILO ₁₋₃	Lecture; online concept checking questions; using Excel or SPSS to conduct data analysis
Tests for means	CILO ₁₋₃	Lecture; online concept checking questions; using Excel or SPSS to conduct data analysis
Power and effect size	CILO ₁₋₃	Lecture; online concept checking questions; using G*Power for calculation of sample size
Correlation and Simple linear regression	CILO ₁₋₃	Lecture; online concept checking questions; video, online game; using Excel or SPSS to conduct data analysis

4. Assessment

Assessment Tasks	Weighting (%)	CILO
a. One Home assignment Conduct statistical analyses using the information or the data set provided by instructor to answer guided questions.	50%	CILO ₁₋₃
b. One end-of-semester quiz covering all the lecture and tutorial materials: This quiz would include a variety	50%	CILO ₁₋₃

of multiple-choice (MC), True-or-false (T/F) and short-answers (SA) questions.		
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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 acknowledgment, 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.

7. Recommended Readings

Aron, A., Coups, E. J., & Aron, E. (2020). *Statistics for psychology* (7th ed.). Pearson.

Green, S. B., & Salkind, N. J. (2023). *Using SPSS for Windows and Macintosh: Analyzing and understanding data* (6th ed.). Prentice Hall.

Hancock, G. R., & Mueller, R. O. (Eds.) (2019). *The reviewer's guide to quantitative methods in the social sciences*. Routledge.

Hanna, D., & Dempster, M. (2025). *Psychology statistics for Dummies*. (2nd ed.). John Wiley & Sons.

Howitt, & Cramer (2021). *Introduction to SPSS in Psychology*, (8th ed.). Pearson Education.

Julie Pallant (2020). *SPSS Survival Manual*, (7th ed.). McGraw Hill

Levine D.M., Berenson M.L., Krehbiel T.C. and Stephen D.F. (2020). *Statistics for Managers using MS Excel*. (9th ed.). Pearson/Prentice Hall.

Lind D.A., Marchal W.G. and Wathen S.A. (2021) *Basic Statistics for Business and Economics*. (10th ed.). Irwin/McGraw-Hill.

Salkind, N. J. (2021). *Excel statistics: A quick guide* (3rd ed.). Sage.

8. Related Web Resources

- A Practical Guide to Sample Surveys:
http://www.hkss.org.hk/images/book/Eng_sample_survey.pdf
- 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/>

- Daniel Soper Statistics Calculators <http://www.danielsoper.com/statcalc/default.aspx>
- Dr. Lee A. Becker's Effect Size Calculators: <https://www.uccs.edu/lbecker/>
- Guess the Correlation: <http://guessthecorrelation.com/>
- John C. Pezzullo catalogue of online statistical calculators and texts: <http://statpages.org/>
- Mathcracker Critical T-values calculation: https://mathcracker.com/t_critical_values
- NIST/SEMATECH e-Handbook of Statistical Methods: <http://www.itl.nist.gov/div898/handbook/index.htm>
- VassarStats Website for Statistical Computation: <http://vassarstats.net/>

8. Related Journals

American Statistician

Applied Statistics

British Journal of Mathematical & Statistical Psychology

Communications in Statistics-Theory and Methods

Computational Statistics & Data Analysis

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

Psychometrika

Statistica Sinica

Statistical Science

The Annals of Statistics

9. 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.

10. Others

Nil