Introduction to Statistics

Tentative course syllabus

Spring 2024

Instructor: Huifen Lin
Class Time: Tues 13:30~16:20
Classroom: HSS C521
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ABOUT THE COURSE

This course deals with data analysis in TESOL, including both general language learning and CALL (computer-assisted language learning) applications. Emphasis is on the use of descriptive and analytical procedures in data analysis, rather than the theoretical derivation of tests. Students will be introduced to the use of computer processing of research data, using a comprehensive, flexible, pre-programmed software package, SPSS. Appropriate amount of time will be devoted to the discussion of data analysis section in journal articles to understand how each statistic procedure is performed to answer designated research questions and test hypotheses. This course is NOT designed to analyze linguistic data.

Specifically, students satisfactorily completing this course will develop skills in:

- Using SPSS for data analysis
- Interpreting SPSS outputs
- Choosing appropriate statistic methods based on research questions
- Establishing validity and reliability for chosen instruments
- Report statistics in APA style in the text of a research report

GRADING

Homework assignments: 40%
Mid-term exam: 20%
Oral presentation: 10%
Final paper: 30%

REQUIREMENTS

Homework assignments

Several homework assignments covering content of each topic will be assigned approximately every two or three weeks. You would bring a hard copy of the assignment to class and email the output to me before

the due date.

Mid-term Exam

The mid-term exam will test materials covered in class up to week #8. Details of the exam will be provided in class.

Oral presentation of an exemplar study and research proposal

Each student is required to give a PowerPoint presentation to the class on one article and his/her research proposal. The presentation should highlight the research purpose, questions, data collection/analysis procedures (and results).

Final paper

Students are required to collect data for a small-scale study, analyze the data and write up the results, which should be equivalent to a formal research paper. The paper should include major parts of a formal research paper including Introduction, Literature Review, Methodology, and Data analysis, Results and brief Discussion and Works cited. The grading will be based on the accuracy of data analysis and interpretation of the results. The grading of this assignment will also base on the extent to which you could use what you learn in this class to design a significant research study and perform accurate data analysis.

Special note. Unless granted permission by the instructor, the use of artificial intelligence software is forbidden for all course assignments.

COURSE MATERIAL

Handouts are prepared for the course. Contact 名揚輸出(光復路二段 364 號/ 03-5720093) for a copy of the handouts. Further notice will be provided when the handout is available.

Week	Content
1. 2/20	Introduction
2. 2/27	Introduction: What is "Statistics"? The Use of Statistical Methods in Research Independent and Dependent Variables Types of Measurement Descriptive Statistics Measures of Central Tendency Measures of Dispersion
3. 3/5	Computers and Statistical Analysis Data Files

	Statistical Package Programs – SPSS (I)
4. 3/12	Statistical Package Programs – SPSS (II) Normality Test Using SPSS
5. 3/19	Bivariate Correlation Analysis (Pearson correlation) Simple Linear Regression
6. 3/26	T-Tests for the Difference Between Two Means: Independent T-test One-Sample T-Test Paired Samples T-Test
7. 4/2	Analysis of Variance One-Way ANOVA Post hoc Tests
8. 4/9	Midterm exam
9. 4/16	Analysis of Covariance (ANCOVA) Pretest- posttest Covariance Analysis
10. 4/23	Analysis of Variance Repeated Measures One-Way ANOVA
11.4/30	Multiple Regression Analysis
12. 5/7	Two-Factor ANOVA; Randomized Block; Factorial Designs (I)
13. 5/14	Two-Factor ANOVA; Randomized Block; Factorial Designs (II)
14. 5/21	Cohen's Kappa Factor Analysis
15. 5/28	Reliability and Validity Repeated-surveys reliability Equivalent-surveys reliability Internal-consistency reliability
16. 6/4	Research proposal presentation