UNSW SYDNEY Arts & Social Sciences

School of Education

EDST5101
Advanced Quantitative Research
(formerly Experimental Research Design)

Term 2, 2019

Contents

IMPORTANT:
For student policies and procedures relating to assessment, attendance and student support, please see website, https://education.arts.unsw.edu.au/students/courses/course-outlines/

The School of Education acknowledges the Bedegal people as the traditional custodians of the lands upon which we learn and teach.

1. LOCATION

Faculty of Arts and Social Sciences
School of Education
EDST5101 Interventionist and experimental design and analysis (6 units of credit)
Term 2, 2019

2. STAFF CONTACT DETAILS

Course Coordinator:	Jihyun Lee
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Phone:	9385 1940
Availability:	By email

3. COURSE DETAILS

Course Name	Interventionist and experimental design and analysis
Credit Points	6 Units of Credit (UOC)
Workload	Involves 150 hours including class contact hours, readings, class preparation, assessment, follow up activities, etc. Include 24 hours of class contact time.
Schedule	http://classutil.unsw.edu.au/EDST_T2.html

SUMMARY OF COURSE

This course covers data analytic strategies for evaluating individual and group differences, involving small scale experimental to large-scale studies in educational settings. The focus of this course is to understand and apply research designs, analyze and interpret statistical data, and report the results of studies. The course covers a number of basic descriptive statistical procedures, as well as inferential procedures including t-tests and ANOVA tests.

AIMS OF THE COURSE

Develop an understanding of how to conduct an appropriate statistical analysis of the data, interpret research results, and accurately report the data analysis and interpretation.

THE MAIN WAYS IN WHICH THE COURSE HAS CHANGED SINCE LAST TIME AS A RESULT OF STUDENT FEEDBACK:

- More time allocated to writing up results of analysis
- More time allocated to operation of SPSS

STUDENT LEARNING OUTCOMES

Outcome		Assessment/s
1	Demonstrate an understanding of how to design a research study.	1, 2
2	Demonstrate an understanding of basic statistical techniques for the analysis of data.	1, 2
3	Demonstrate the ability to apply basic statistical techniques and interpret research results.	1, 2
4	Demonstrate the ability to report the method and results of an experiment.	2

GRADUATE ATTRIBUTES

Standard		Assessment/s
1	**Advanced disciplinary knowledge and practices** Demonstrate an advanced understanding of the field of education as it relates to their specialist area of study, and the ability to synthesize and apply disciplinary principles and practices to new or complex environments.	1, 2
2	**Research-based learning** Demonstrate an in-depth understanding of research-based learning and the ability to plan, analyse, present implement and evaluate complex activities that contribute to advanced professional practice and/or intellectual scholarship in education	1, 2
3	**Cognitive skills and critical thinking** Demonstrate advanced critical thinking and problem-solving skills	1, 2
4	**Communication, adaptive and interactional skills** Communicate effectively to a range of audiences, and be capable of independent and collaborative enquiry and team-based leadership	2
5	**Ethical and responsible professional practice** Demonstrate an advanced capacity to recognise and negotiate the complex and often contested values and ethical practices that underlie education	2

4. RATIONALE FOR THE INCLUSION OF CONTENT AND TEACHING APPROACH

EDST5101 places an emphasis on understanding research designs, analysing and interpreting the data and writing research reports. This course is based on a learning philosophy that highlights individual as well as collaborative learning through understanding fundamental concepts and hands-on exercises.

5. TEACHING STRATEGIES

Student-centred activities will form the basis of the course, which will draw on the prior knowledge of the students and allow engagement in relevant, challenging and hands-on experiences. The lectures are designed to include meaningful realistic learning tasks as well as promote independent and collaborative study and enquiry.

Teaching strategies used during the course will include: small group learning to understand the importance of teamwork in an educational context and to demonstrate the use of group structures as appropriate to address teaching and learning goals; individualized learning that enables learners to function as individuals; explicit teaching including lectures and a range of teaching strategies to foster interest and support learning; structured occasions for reflection on learning to allow students to reflect critically on issues discussed; extensive opportunities for the whole group and small group dialogue and discussion, allowing students the opportunity to demonstrate their capacity to communicate. These activities will occur in a climate that is supportive and inclusive of all learners.

6. COURSE CONTENT AND STRUCTURE

Module	Lecture Topic	Field (2018) Textbook
Day 1 July 15 (Monday)	Introduction: Fundamentals of statistics Research design and statistical testing using: t-test	Chapters 1 & 10
Day 2 July 16 (Tuesday)	Research design and statistical testing using: Analysis of Variance	Chapter 12
Day 3 July 18 (Thursday)	Research design and statistical testing using: Correlation and Regression	Chapters 8 & 9
Day 4 July 19 (Friday)	Research design and statistical testing using: Exploratory Factor Analysis	Chapter 18

7. RESOURCES

Readings

Main Textbook

Field, A. (2018). *Discovering statistics using SPSS.* London; Sage.

Supplementary Textbook

Heiman, G. (2011). *Basic statistics for the behavioural sciences*. Belmont, CA: Wadsworth, Cengage Learning

Morgan, G., Leech, N., Gloeckner, G., & Barrett, K. (2011). *IBM SPSS for introductory statistics: Use and interpretation*. New York: Routledge.

Pallant, (2010). *SPSS Survival Manual: A Step by Step Guide to Data Analysis Using SPSS*. Allen & Unwin.

Further Readings

Copies of articles and book chapters will be provided during the lectures.

8. ASSESSMENT

Assessment Task	Length	Weight	Learning Outcomes Assessed	Graduate Attributes Assessed	Due Date
Assessment 1: Online quiz	About 30 items	40%	1, 2, 3	1, 2, 3	Day 4 (In-class) Online quiz (Friday)
Assessment 2: Report	Three problems	60%	1-4	1-5	August 02 (Friday) 5:00 PM

Submission of assessments

Students are required to follow their lecturer's instructions when submitting their work for assessment. All assessment will be submitted online via Moodle by 5pm. Students are also required to keep all drafts, original data and other evidence of the authenticity of the work for at least one year after examination. If an assessment is mislaid the student is responsible for providing a further copy. Please see the Student Policies and Procedures for information regarding submission, extensions, special consideration, late penalties and hurdle requirements etc. https://education.arts.unsw.edu.au/students/courses/course-outlines/

Assessment Details

Assessment 1: Online quiz (40%)

Students will take an online quiz on the final day (Day 4, in-class). There will be about 30 items (item format: multiple choices). Most of the questions will be based on the textbook (Field, 2018): Chapters 1, 8, 9, 10, 12, and 18. Carefully read these chapters to do well in the quiz.

This course runs in just four days. It is strongly recommended that students read these chapters before the course starts on July 15.

Assessment 2: Report (60%)

- This assessment task will require students to produce output and writing based on SPSS exercises.
- Based on the content covered in class, three sets of data analysis problems will be presented to students to analyse.
- It is expected that students will present descriptive statistics (e.g., Means and Standard deviation) and inferential statistics (e.g., t-test, ANOVA).
- A format of this report is write-up in the results sections of a typical journal article.
- The results should be presented in a couple of tables (in the APA style: American Psychological Association) as well.
- The assessment should include SPSS output files as an appendix.
- Description and interpretation of the data should be accurate, appropriate, concise, and readable.

UNSW SCHOOL OF EDUCATION
FEEDBACK SHEET
EDST5101 Quantitative analysis

Student Name: Student No.:
Assessment Task: **Assessment 2: Report**

SPECIFIC CRITERIA	(-) ➤ (+)				
Understanding of the question or issue and the key concepts involved • Demonstrate a clear understanding of statistical testing • Demonstrate a clear understanding of the t-test • Demonstrate a clear understanding of the F-test • Use of appropriate statistical terminology					
Depth of analysis and/or critique in response to the task • Demonstrate a well-thought-out analysis plan • Correct and appropriate analysis design • Alignment between the constructs, research design, and the analysis					
Familiarity with and relevance of professional and/or research literature used to support response • Draws upon correct analysis techniques • Produces correct and appropriate analysis results (in numbers) • Produces correct and appropriate interpretations of the results (in words)					
Structure and organisation of response • Present your ideas clearly • Present your ideas in logical and coherent order					
Presentation of response according to appropriate academic and linguistic conventions • Use of language with clarity and coherence • Use of academic writing conventions (e.g., punctuation, spelling, grammar, use of full sentences, capitalization) • Appropriate sentence structure • Appropriate paragraph structure • Appropriate use of headings and subheadings • Appropriate use of tables • APA style: American Psychological Association (tables, references, texts)					
GENERAL COMMENTS/RECOMMENDATIONS FOR NEXT TIME					

Lecturer **Date**
Recommended: /60 (FL PS CR DN HD) **Weighting: 60%**

NB: The ticks in the various boxes are designed to provide feedback to students; they are not given equal weight in determining the recommended grade. Depending on the nature of the assessment task, lecturers may also contextualize and/or amend these specific criteria. **The recommended grade is tentative only, subject to standardisation processes and approval by the School of Education Learning and Teaching Committee.**