Course Description MEDD8815 Introduction to Statistical Methods

Course description

This course is designed to introduce students to the most commonly used statistical methods in educational and social science research. No prior knowledge of statistics is required, but essentials of arithmetic and basic algebra will be used throughout the course. Topics covered in this course include descriptive statistics, graphical representations, correlation, regression, basic probability, sampling distributions, confidence intervals, one- and two-sample t-tests, chi-square test, and one-way analysis of variance.

Course objectives

This course aims to help students gain basic statistical literacy. In addition to being able to carry out basic statistical analyses on their own, students who finish this course are expected be able to read and understand journal publications that employ these methods. This course also aims to provide the necessary background for students to take more advanced research methods courses (e.g., Factor Analysis, Structural Equation Modeling), as well as courses in Measurement.

Course learning outcomes (CLOs)		Aligned programme learning outcomes (PLOs)
1.	Understand the proper use and implementation of descriptive statistics	PLOs 1, 2
	and graphical representations	
2.	Understand basic probability theory and distributions of random	PLOs 1, 3
	variables, and how they form the foundation of statistical analyses	
3.	Understand the appropriateness of different statistical methods in relation	PLOs 1, 2
	to various data types and research questions	
4.	Carry out the basic statistical analyses using computer software, in	PLO 1
	particular, SPSS	
5.	Interpret and make decisions based on the statistical test results	PLOs 4, 5
Course assessment methods		

Homework assignments

- Weekly Quiz
- Class and online discussions

Course content and topics

- Looking at Data Distributions
- Looking at Data Relationships
- Producing Data & Probability
- Sampling Distributions & Inference
- Inference for Means
- Inference for Proportions and Two-Way Tables
- Inference for Simple and Multiple Regression
- One- and Two-Way Analysis of Variance

Required / recommended readings and online materials

Moore, D. S., McCabe, G. P., & Craig, B. (2014). *Introduction to the practice of statistics*. (8th ed). New York: W. H. Freeman.

Other additional course information

Advanced Research Method (ARM)