IPSA Online Summer School on Research Methods, Antalya 2024

"Introduction to Regression Analysis"

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Course Topics: This course is designed for researchers, who are eager to understand the basics of quantitative data analysis, yet who have had limited significant experience in this field before. This one-week course is an introduction to regression analysis. Students are exposed to the classical theory of Ordinary Least Squares (OLS) regression and introduced to applied methods in regression analysis using the statistical software package Stata. A solid understanding of OLS regression in theory and practice is the foundation for more advanced techniques in regression analysis. The course provides students with the necessary foundation for integrating theory with the application of regression analysis. For this purpose, the course will first cover topics such as variables and hypothesis, conceptualization/operationalization, levels of measurement as well as descriptive statistics. The second objective is to encourage participants to conduct their first quantitative analysis. For this purpose, the course will cover topics such as the statistical inference, tests of significance, correlation and regression analysis.

Learning Objectives: At the end of the course, students will;

- ϒ   Have intuitive knowledge on the workings of regression models,
- ϒ   Have solid background for building models in social research,
- ϒ   Be able to analyze, visualize and interpret available data,
- ϒ   Become better readers of political science literature,
- ϒ   Have courage and knowledge to apply quantitative methods in their research.

The course will utilize STATA as the statistical software. Each lecture will be supplemented by STATA lab sessions. These sessions will be hands-on sessions. Students will have the opportunity to practice the course topics by using different social science data. They are also welcomed to bring their own research data and receive feedback on their analysis.

Schedule:

Morning sessions are for lectures, the afternoon sessions are for discussions and introduction to the software. Assigned readings should be done *before* the respective session.

Date, Time		Topics
Day 1	Morning Session	Quantitative Research Design Deductive logic | Variables and hypothesis | Framing Hypothesis | Cross-tabulations and mean comparisons | Distributions |
	Afternoon Session	Practice Session 1 Introduction to STATA | Introduction to Social Science Data | Constructing variables | Frequency tables
Day 2	Morning Session	Difference of means tests Central tendency | Difference of means tests | Charts and Tables
	Afternoon Session	Practice Session 2 STATA Practice for Cross-tabulations | Mean comparisons | Charts & Tables
Day 3	Morning Session	The simple linear regression models The logic of OLS | Deriving regression coefficients | Statistical significance
	Afternoon Session	Practice Session 3 STATA practice for ANOVA | t-test | Chi-square test
Day 4	Morning Session	Hypothesis testing: Testing regression coefficients | Confidence Intervals | Heteroskedasticity
	Afternoon Session	Practice Session 4 STATA practice for Correlation and regression analyses
Day 5	Morning Session	The multiple linear regression: Model specification | Testing hypotheses in multiple linear regression | Summary & Course Reflection
	Afternoon Session	Practice Session 5 STATA practice for multiple linear regression

Course books:

Babbie, Earl. (2014). The Basics of Social Research(6th edition). Wadsworth, Cengage Learning.

Philip H. Pollock III (2012). The Essentials of Political Analysis, Sage Publications (Newer editions of this book are also available).

Stock, James H., and Mark W. Watson. (2015). *Introduction to econometrics* 3rd ed. Pearson.