

POP77051— QUANTITATIVE METHODS I

Module Information	
Module Code	POP77051
Module Title	QUANTITATIVE METHODS I
Department	Political Science
Module Personnel	Jeffrey Ziegler
Academic Year	2026-27
Credit Weighting	10
Semester	Semester 1
Contact Hours	2 hr lecture, 2 hr tutorial once per week

Module Content	
Module Description	This is the first course in the quantitative methods sequence, which introduces the linear regression model as a fundamental tool in applied statistical analysis. Students will apply concepts of statistical analysis, specifically multi-variable analysis and model building, to a broad set of real-world data and problems from the social sciences. We will cover the assumptions that underlie the linear regression model, including issues of estimation and inference, as well as methods used to diagnose and correct for violations of those assumptions.
Module Learning Aims	My expectation is that at the end of the semester students will be savvy readers of published research and tasteful users of linear models.
Learning Outcomes	Students will be proficient in topics such as: • examining and transforming data • linear regression • dummy variable regression • diagnostics of unusual and influential data • non-constant variance, non-normality, & collinearity • model selection
Indicative Reading / Resources	• Angristi, Alan and Barbara Finlay (2009). Statistical Methods for the Social Sciences. Fourth Edition.

Module Content

	• Chatterjee, Samprit and Ali S. Hadi (2012). Regression Analysis by Example. 5th edition. • Cunningham, Scott (2020). Causal Inference: The Mixtape. 1st Edition. • Fox, John (2015). Applied Regression Analysis and Generalized Linear Models. 3rd edition. • Hosmer, David W., Stanley Lemeshow, and Rodney X. Sturdivant (2013). Applied Logistic Regression. 3rd edition. • Imai, Kosuke (2017). Quantitative Social Science: Introduction. 1st edition. • James, Gareth, Daniela Witten, Trevor Hastie, and Robert Tibshirani (2013). An Introduction to Statistical Learning with Applications in R. 1st edition. • Kmenta, Jan (1986). Elements of Econometrics. University of Michigan.
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Assessment

Assessment Components	Problem Sets: 50% Mid-Term Exam (arranged locally): 25% End of Term Exam (arranged locally): 25%
Assessment Details	NA

Additional Information

Prerequisites	None
Co-requisites	None
Any other information	NA