A3.2 - Kvantitatiiviset aineistot ja tutkimusmenetelmät
Autumn 2025

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Course Overview

This course will help you become familiar with the general approaches to conducting quantitative research. Generally, this course should provide you with a basic overview of the main quantitive hypothesis testing techniques using statistical software. At the end of this course, you should have a general idea of which types of quantitative methods you could implement in a Bachelor's thesis, as well as have a clear idea of which resources to consult for assistance in conducting a quantitative analysis.

Course Objectives

Broadly speaking, the major task of this course is the ability to conduct basic quantitative analysis techniques using R statistical software. Therefore, it is expected that at the end of the course that you will be able to conduct a range of general techniques related to data analysis/munging, descriptive statistics, visualization, and statistical modeling.

Measure 1: Is able to analyze data and evaluate descriptive statistics.

Measure 2: Is able to estimate the appropriate statistical model based on the dependent variable's level of measurement.

Additional Learning Objectives

- Recode variables in an intelligible manner.
- Evaluate the usefulness of variables for statistical analysis.
- Visually display a variable in a coherent manner.
- Utilize and evaluate measurement techniques.
- Estimate and interpret linear, logistic, ordinal, & multinomial logistic regression.

Course Requirements

R Homework Assignments = 3

There are 3 substantive weeks where there are readings and labs. For these weeks, there is a lab assignment based on the readings and lab. Each assignment must provide the R code that was utilized for the assignment, original presentation of the output created as if you were going to include them in a thesis, and a full explanation regarding what the output means substantively. The assignments are due to be submitted online the Tuesday after we cover the topic by 17.00 (see, schedule).

Participation

Half of the tasks in this course require in class participation. In particular, every lab session has a lab activity portion where you must complete tasks in R. Therefore, attendance in class session, as well as active participation, is mandatory to pass.

Empirical Analysis

The major tasks for this course is a data analysis assignment. You are to conduct an empirical investigation and convey the analysis and results to the class in presentation format (10-15 mins). The assignment can be completed in groups of up to 3 people. You must upload a .pdf of the presentation to Moodle before the class session you are scheduled to present during.

The data analysis presentation must include the following features:

- Data - discussion of the data source & collection method
- Dependent variable(s) - operationalization, measurement, & visual display
- Research method - type of method, implementation, difficulties
- Independent variables - operationalization, measurement, & visual display
- Analysis - original presentation of regression output & discussion of findings
- Limitations - issues with the analysis

Textbooks

Holbrook, Thomas M. 2023. *Introduction to Political and Social Data Analysis (Using R)*. Bookdown.org.

Long, J. Scott. 1997. *Regression Models for Categorical and Limited Dependent Variables*. Advanced Quantitative Techniques in the Social Sciences Series 7. Sage Publications.

Class Schedule

Part I - Introduction to R & Variable Coding

Week 1: Wed 22.10.2025 12.00-14.00 PUB408
Syllabus
Student introductions
Topic: *Course Introduction & Introduction to R*

Week 1: Thu 23.10.2025 12.00-14.00 PUB408
Topic: *Variable Coding*
Read: Holbrook (2025), Ch. 1-2, 4.

Homework 1 - 28.10.2025 at 17.00

Part II - Descriptive Statistics, Measures of Dispersion, & Visualization

Week 2: Wed 29.10.2025 12.00-14.00 PUB408
Topic: *Frequencies & Measures of Central Tendency*
Read: Holbrook (2025), Ch. 3 & 5

Week 2: Thu 30.10.2025 12.00-14.00 PUB408
Topic: *Measures of Dispersion*
Read: Holbrook (2025), Ch. 6

Homework 2 - 04.11.2025 at 17.00

Part III - Correlation & Linear Regression

Week 3: Wed 05.11.2025 12.00-14.00 PUB408
Topic: *Correlation & Linear Regression*
Read: Holbrook (2025), Ch. 15-16

Week 3: Thu 06.11.2025 12.00-14.00 PUB408
Topic: *Logistic Regression*
Read: Long (1997), Ch. 3

Homework 3 - 11.11.2025 at 17.00

Part IV - Open Lab Collaborative Work

Week 4: Wed 12.11.2025 12.00-14.00 PUB408
Topic: Lab Work in Preparation for Presentation
Read: Hansen (2024)

Week 4: Thu 13.11.2025 12.00-14.00 PUB408
Topic: Lab Work in Preparation for Presentation

Part V - Empirical Analysis Presentations

Week 5: Wed 19.11.2025 12.00-14.00 PUB408
Topic: Presentations of Empirical Analyses

Week 5: Thu 20.11.2025 12.00-14.00 PUB408
Topic: Presentations of Empirical Analyses