RUHR UNIVERSITÄT BOCHUM

QUANTITATIVE REGIONAL ECONOMICS

COURSE OUTLINE Winter SEMESTER 2026/27

Dr. Imke Rhoden (Jülich Systems Analysis, Forschungszentrum Jülich)

CONTENT

The seminar provides a comprehensive overview of empirical regional economics and introduces methods for the processing of geographical data and public data. It focuses on developing regional economic research questions and corresponding econometric applications to individually chosen issues, e.g., economic growth, innovative activity, labor markets, energy transition issues, or other current topics of economics. Data to be analyzed is obtained on a regional and temporal high resolution, accounting for spatio-temporal patterns of data variation. The regional dimension is the main focus of this seminar, as it follows the underlying concept that geographical origins of, e.g., economic activity, are an essential factor in explaining variations in agglomeration and dispersion processes and locational differences matter.

Contents of the seminar:

- Application of methods in R
- Analysis of data in R
- Regression analyses
- Visualization of geographical patterns
- Development and analysis of a regional economic research question
- Creation of a presentation as a dynamic document containing the results in LaTeX

MODULE OBJECTIVES

Students shall be able to gain an overview of the methods of regional research. They shall work with geographical data, process the data in R and show application of the methods of investigation in R. Results shall be analyzes, discussed and presented. The students are expected to program all analyses and visualize results accordingly. The complete process of developing a research question, documenting and programming, and visualization of the results have to be shown in a final presentation.

PREREQUISITES

Basic knowledge of the programming language R.

ORGANIZATION

This module consists of guided interactive seminar sessions and collaborative discussion of modeling challenges. Students have to bring their own laptops to the sessions to work on their models.

Participants: 15

Assessment: The final module grade results from the grade of an individually held presentation which contains the development, processing and the results of the chosen research question. Credit points are awarded after successful completion of the final module examination and an obligatory hand-in of the presentation's program code.

Time and place: **Mondays**, **16:00 – 17:30, GD 03/218**

Start: **19.10.2026**

Exam Registration:	01.10.2026 – 08.01.2027 via **FlexNow**
Exam De-Registration:	01.10.2026 – 25.01.2027 via **FlexNow**
Date of Examination:	**01.02.2027, 16:00-18:00, GD 03/218**

SELF-STUDY

This module contains 138.75 hours of self-study.

RECOMMENDED READINGS

Will be shared in the accompanying Moodle course.

SCHEDULE

Will also be shared on Moodle.