

Performing reproducible research in economics and management sciences

Outline

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Objective

Performing reproducible research, that means the ability of researchers to duplicate the results of a study using the same materials and procedures belongs to the core elements of the scientific process. Yet, many published studies even in high-ranked journals fall behind these principles. In parallel, funders of research projects and scientific journal editors increasingly require research to be reproducible.

This two-day class provides an introduction to the principles of reproducible research in the fields of economics and management. As practical application, students will get familiar with an example of a replicated research article in the field of health care. The aim is to provide a compact introduction to reproducible research principles and their implementation into the scientific research process in practice.

Increasing reproducibility of your own research project not only increases the credibility and quality of your own scientific work, but also comes with the benefit of increasing the efficiency of the scientific work-flow.

Target groups

(Late stage) master and PhD students performing data science driven projects using big data or linking data from multiple sources. Data sources could include survey, administrative, web-based, bibliometric or, company data. Data collection for your own project does not need to be completed at the time of attending the course. Students should have an own research project starting or ongoing and be able to specify a study objective and research questions. Students can have backgrounds in economics and business studies as long as they aim to perform a

project for manuscript submission in major field or general interest journals. This is typically one chapter of a cumulative dissertation.

Learning Targets

- Familiarize with the principles of reproducible research
- Obtain knowledge of the five steps of a reproducible research project
- Familiarize with research tools and practices that facilitate reproducible research (introduction to tools like R Markdown / Quarto)
- Assess the role of elements of the reproduction process for own research project (e.g. pre-registration, data management plan)
- Familiarize with the requirements to document the data and analysis codes for journal submission
- Enabling of developing a reproducible research process for a Master thesis / PhD project
- Enabling management of tasks for reproducible research in a team of co-authors

Outline

1. Reproducible research - Why it matters in economics and business research
2. Formulating a hypothesis
3. Designing the study
4. Running the study and collecting the data
5. Analyzing the data
6. Reporting the study

Methods of assessment

The grading of the course will be based on a written outline of your own project idea that you aim to perform based on principles of reproducible research. The assignment will include a 5-pager in the form of a pre-registration protocol or study plan for your own research project, including project documentation files.

Format

The course will be divided in introductory and practical sessions that will allow students to apply the principles to reproducible research. Students will receive a hands-on introduction

to selected tools to enable reproducible research and increase research efficiency. Students will discuss elements of their reproducible research project in the group. Implications for engaging with policy makers and practice will be addressed. The course aims to facilitate the ongoing research projects of students. Expect the two days like a boot camp for your own data driven and empirical work.

Requirements

There are no specific requirements in terms of programming language or statistical software used. Students will receive an introduction to R Markdown and its use in projects based on R Studio / Quarto.

References and resources

The course will be based on this open educational resource: Katharina Blankart, Eva Goetjes, Kai Miele and Maryna Ivets. 2022. A Concise Guide to Reproducible Research Using Secondary Data. Essen: Open Educational Resource. <https://katblankart.github.io/DataLiteracy/index.html>.

Credits

Students will receive 6 ECTS upon successful submission of a 5-page research proposal is submitted within four weeks after the course.