

Theoretical and Empirical Research Methodology

M.A. International Management Studies — Fall Semester 2026

23 October 2026

This seminar description is also available online. The most recent version — together with all session materials — is on the course website at <https://researchmethodology-fall26.netlify.app/content/SeminarDescription.html>, which is also linked from the Moodle room. Please check there for updates.

Lecturers: Prof. Dr. Claudius Gräbner-Radkowitsch^{a,b,c} & Anna-Katharina Kothe^a

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1 Overall Goal of the Course

Students will learn scientific methods and tools that are essential for advanced seminars at the university and relevant for advanced management activities. In addition to core methodological skills, students learn to use modern AI tools and the R programming language to perform applied research tasks in both academic and business contexts.

2 Learning Goals

At the end of the course, students will have acquired the following competences:

Conceptual and argumentative competence:

- Develop a command of basic logic, including the ability to identify arguments and deconstruct their logical structure and components, both in the writing of others and in one's own ideas.
- Cultivate the ability to grasp the main arguments and positions in a debate, and to neutrally describe and reflect on the arguments exchanged.

Methodological competence:

- Gain a broad overview of common research methods in the social sciences and business, including their strengths and weaknesses.

- Develop the ability to evaluate methodological approaches to specific research questions and select appropriate combinations of methods.
- Learn to effectively structure research projects and implement methodological approaches in the correct chronological order.

Practical and computational skills:

- Master the implementation of the covered research tools using the R programming language.
- Develop skills to produce professional, attractive, and reproducible research reports using Quarto.
- Gain project and knowledge management skills using modern tools such as Zotero for bibliographic management and Obsidian for note-taking.

3 Structure and Basic Philosophy

The course consists of two parts: a **main lecture** and an **implementation lab**. The lecture takes place every Monday and introduces the basics of the various topics and tools. The implementation lab takes place every Friday and combines face-to-face meetings with instructional videos; here you learn hands-on how to implement the key tools using the programming language R. It is therefore essential that you bring your laptop to each lab session.

4 Course Information

4.1 Prerequisites

This course does not require the completion of any other course in the IMS Master's program, and we do not require prior knowledge of programming languages or of any of the methods covered in this course (although it may be helpful). We do, however, assume knowledge of some basic mathematical and statistical concepts, which are listed in Section 8.

4.2 Course Details

- **Main lecture:** Mondays, 11:30–13:00, Room MAD 024 (Madrid Building)
- **Implementation lab:** Fridays, 11:15–12:45, Room MAD 024 (Madrid Building). Note that the lab does *not* meet on site every week: several sessions are video labs that you work through on your own. Which Friday is which is indicated in the schedule below.
- **Lecture period:** 14 September – 11 December 2026 (no class in the week of 12–16 October 2026)
- **Lecturers:** Claudius Gräbner-Radkowsch (CGR) & Anna-Katharina Kothe (AKK)
- **Credits:** 5 ECTS ($\approx$ 150 h total workload; see Section 6)

4.3 Course Resources

- **Course website:** <https://researchmethodology-fall26.netlify.app> — holds the material for both the lecture and the lab, including this description.
- **Moodle room:** [room 17920](#), password **ResearchMethods26** — used for all official announcements, for the take-home examinations, and for the discussion forum.

5 Schedule and Logistics

! Important

Note: This schedule is subject to change as the course progresses. Announcements will be made via [Moodle](#). The latest version of this description is always available on the course website.

All on-site events take place in **MAD 024**. **Each topic links to its session page**, which holds the slides, the reading list and the exercises. The non-teaching week (12–16 October) is included for completeness. For the lab, the column *Lab (Fri)* also states whether the session is an **on-site lab** or a **video lab** that you work through on your own.

The lecture of 5 October had to be cancelled. All later lectures were therefore moved by one week, the lecture on *Literature reviews* is delivered as a **video lecture** released on 2 November, and the Monday of 7 December is kept in reserve. **The dates of the implementation lab did not change.** The concluding open Q&A for the whole module is the lab session on 11 December.

Table 1: Combined schedule of lecture and implementation lab. The implementation lab is taught by CGR throughout.

Week	Lecture (Mon)	Topic Lecture	Instr.	Lab (Fri)	Topic Lab
1	14.09.	General introduction	AKK & CGR	18.09. (on-site)	General introduction & installation
2	21.09.	AI tools in practice	CGR	25.09. (video)	Basics of R and R Studio
3	28.09.	Basics of logic	AKK	02.10. (on-site)	Project management & recap
4	05.10.	<i>Cancelled — moved to 19.10.</i>	—	09.10. (video)	Object types
	12.10.	<i>No class</i>	—	16.10.	<i>No class</i>
5	19.10.	Logic, argumentation, models, and explanation — <i>Take-home examination I</i>	AKK	23.10. (video & on-site)	Quarto and R Markdown (plus on-site recap session)
6	26.10.	Quantitative and qualitative research	AKK	30.10. (video & optional on-site)	Importing data (plus optional on-site recap session)
7	02.11.	Interviews	AKK	06.11. (video)	Data preparation
7	<i>rel. 02.11.</i>	Literature reviews — <i>video lecture; Take-home examination II</i>	CGR		
8	09.11.	Case studies	AKK	13.11. (video)	Data visualization (plus recap exercises)

Week	Lecture (Mon)	Topic Lecture	Instr.	Lab (Fri)	Topic Lab
9	16.11.	Statistics recap — <i>Take-home examination III</i>	CGR	20.11. (on-site)	Using AI for coding
10	23.11.	Regression analysis	CGR	27.11. (on-site)	Linear models in R
11	30.11.	Experiments	CGR	04.12. (on-site)	Experimental data in R
12	07.12.	<i>Reserve slot — no lecture</i>	—	11.12. (on-site)	Recap session & open Q&A (<i>material TBA</i>)

5.1 Take-Home Examinations

- **First take-home** on logic and argumentation: released 21.10.26, due date: 04.11.26, 23:59.
- **Second take-home** on literature reviews: released 08.11.26, due date: 15.11.26, 23:59.
- **Third take-home** on statistics: released 15.11.26, due date: 22.11.26, 23:59.

All take-home examinations are made available by, and must be submitted via Moodle.

5.2 Exam Dates

- **First exam:** 14 December 2026, 13:15–15:15, Room MAD 024
- **Second exam:** 24 February 2027, 09:15–11:15, Room MAD 024

5.3 Detailed Session Descriptions

The content and goals, the required and further readings, and the exercises for each session are documented on the individual session pages linked in the table above. We strongly encourage you to complete any required readings *after* the lecture; where a text has to be read *beforehand*, this is noted explicitly on the respective session page. Note that we often suggest exercises to help you remember the material — these are different from the take-home examinations described in Section 7.

6 Workload

This course is worth 5 CP. Here is how the expected workload is distributed among the various course activities:

Activity	Time requirement
On-site lectures	$12 \cdot 1.5 = 18$ hours
On-site labs	$7 \cdot 1.5 = 10.5$ hours
Instructional videos	10 hours
Expected self-study (including take-home examinations)	111.5 hours
Total workload	150 hours

We strongly recommend that you spread your study time fairly evenly throughout the semester. It will save you time and effort if you study and practice constantly, not just right before the exams.

7 Evaluation and Assessment

The mark for this course is determined by the **final exam** at the end of the semester. In order to be admitted to the final exam, you must pass two of the three **take-home examinations** assigned during the semester (dates see above). These take-home examinations are graded on a pass/fail basis only and must be completed at home on your own. **Each take-home examination is published on Moodle after the lecture it belongs to**, and you have until the deadline listed above to submit it. The examination, together with an affidavit (*Eidesstattliche Erklärung*), must be uploaded via Moodle. Late submissions are automatically graded as fail.

The final exam is a **120-minute open-book exam** that you take at the university on your own laptop. You are free to bring any materials you wish and to use all the tools you have learned about during the semester. However, it is essential that you document any use of AI tools as explained during the course and in the [AI disclosure template](#). Failure to do so is considered cheating.

The content of the exam is as follows:

- 1/3 – 1/2: Multiple choice questions (via Moodle)
- 1/3 – 1/2: Open questions and technical applications (via Moodle)
- 1/3 – 1/2: R tasks (on your own computer, to be uploaded to Moodle)

8 Required Prior Knowledge in Mathematics and Statistics

We assume knowledge of the basic mathematical and statistical areas described below. If you do not have this knowledge, please make sure that you acquire it as soon as possible; it is assumed in the take-home examination on statistics. We strongly recommend that you review these concepts early in the semester and ask questions via the Moodle forum. While we will do our best to help you with this content, we are not responsible (and unable) to teach these topics in the course itself.

- Fundamentals of probability theory (random variables, probability distributions, expected values)
- Fundamentals of calculus (derivatives, partial derivatives, basic optimization)
- Linear algebra essentials (vectors, matrices, matrix operations, determinants)
- Familiarity with statistical notation and terminology (indices, kinds of variables, scales of measurement)
- Familiarity with the concepts of variance, covariance, and correlation matrices
- Descriptive statistics (measures of central tendency, dispersion, and correlation)
- Basic inferential statistics (confidence intervals, hypothesis testing, p-values)
- Simple linear regression analysis (model assumptions, interpretation of coefficients)
- Understanding of statistical significance and effect sizes
- Basic understanding of sampling methods and their implications
- Ability to interpret common statistical output from software packages
- Understanding of model evaluation metrics (R^2 , adjusted R^2 , residual analysis)

A self-study recap of these concepts is available via the [statistics recap track](#) of the EUF methodology hub.

Contact Information

For questions regarding the course content or logistics, please use the discussion forums in [Moodle](#).