



# “Understanding Digital Information Flow with Computational Methods”

Information about instructor:

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Information about seminar:

Part of the undergraduate program “Communication studies”

takes place weekly (Fridays, 10:00 am – 2:00 pm, Fall semester 2023/2024)

in the CIP-Pool (room 002), Akademistraße 7 (entrance to the left of the main building)

Link to course in LSF course catalogue

Link to course in Moodle

Link to R Tutorial

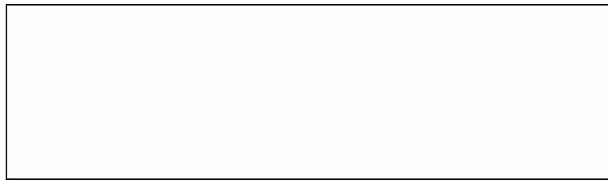
## Summary of Seminar

In an increasingly fragmented digital information environment, audiences can retrieve information across a variety of platforms, such as news websites and social media platforms. Furthermore, information often spreads across these and is updated by the minute, something often discussed as digital information flow or digital information diffusion.

In this seminar, we learn **how to use computational methods** - in particular, web scraping and automated content analysis using R - **to study the flow and diffusion of digital information**. We will learn how to scrape websites, e.g., news websites, to track the flow of information and how to use content analysis to understand what information is shared where.

The seminar is held in English (planned as an in-person meeting, but we may switch to virtual if needed). Students will have to give presentations and write a paper on an empirical project they conducted for final assessment.

**Important:** First, please be aware that this is a research seminar employing computational methods, meaning you will have to learn how to program with R. Previous knowledge of R is not a requirement, but you will have to be interested and willing to learn R via digital tutorials, which we will discuss in class. Second, please don't feel anxious about visiting a seminar in English. I am not a native speaker and I assume most students won't be either. See this seminar as a chance to test and improve your English in a constructive environment - something that will prove useful for your future studies and/or the job market.



## Learning Goals

- Students will learn basic knowledge of theories and empirical studies on information flow, especially in digital information environments.
- Students will be able to conduct their own analyses, using their knowledge of R, web scraping for data collection and manual content analysis for data analysis.
- Students will be able to apply this knowledge to independently conduct a research project on the flow of information in digital information environments. This means that they formulate research questions/hypotheses, develop a suitable operationalization, conduct descriptive analyses/statistical tests to answer these questions/test hypotheses, and critically interpret results.
- Students will be able to critically discuss current research on the topics of digital information flow, summarize its strengths and weaknesses, and evaluate it.
- Students will be able to engage in factual and competent discussions. They are able to communicate their acquired knowledge alone and in groups in a comprehensible and structured manner, both orally and in writing. They are also able to work in groups, resolve potential conflicts, and organize themselves.

## Workload & Assessment

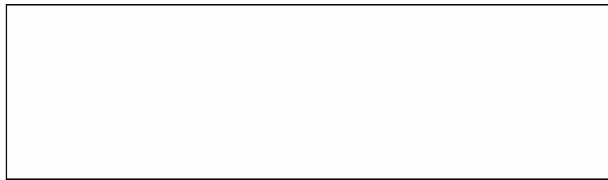
**This is a 12 ECTS seminar which equals 360 hours of work** (different regulations may apply for incoming students). The final grade is based on three different assessments:

- Assessment 1: Preregistration document (20%)
- Assessment 2: Task in R (20%)
- Assessment 3: A term paper (60%)

Please know that the time spent in in-person meetings in class is only a fraction of the actual workload needed to pass the class. The bulk of the required work needs to be done between sessions. The workload includes attendance in seminar sessions, preparing for these via readings, working through R tutorials and related tasks, handing in your preregistration and the graded task in R, collecting and analyzing data for your research project, and a final seminar paper.

### Assessment 1: Preregistration document

The first graded assignment is a *preregistration document*. In short, it outlines which research questions and hypotheses you plan to test as well as the dependent variable you will focus on. You will register the preregistration via OSF and submit the resulting PDF file. For further instructions, see slides from session “S4 Research Design II”. Preregistrations can be delivered individually or in groups with which you conducted your research projects. The preregistration makes up **20%** of the final mark. The preregistration document is due by Wednesday, November 15<sup>th</sup>, 2023 (deadline: 23:59 pm). Please upload your solutions via Moodle (see folder Session 4).



### Assessment 2: Task in R

The second graded assignment is a *Task in R*. In the [bookdown tutorial](#), you will find instructions for the “Graded task in R” at the very end of the tutorial. You can work on this task either in groups or individually. The Task in R makes up **20%** of the final mark. It is due by Wednesday, December 6<sup>th</sup>, 2023 (deadline: 23:59 pm). Please upload your solutions via Moodle (see folder Session 7). In the script, please specify the name of all students who worked on the corresponding task. You can also use the “Template Solution Script” for handing in your solution (voluntary), which provides some structure.

### Assessment 3: Term Paper

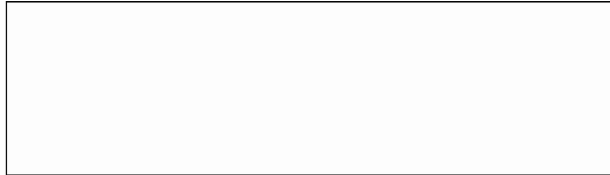
*Term papers* can be delivered individually (35.000 characters) or in groups (45.000 characters for groups of two, 55.000 characters for groups of three, 65.000 characters for groups of four). This includes everything (i.e., from to introduction to references, including blank spaces). It makes up **60%** of the final mark and is due on February 19<sup>th</sup>, 2024 (via Moodle, see folder at the end of the course). The paper should be formatted according to the following guidelines:

- Times New Roman, 12 pt., double spacing; please use template for the title page (Moodle)
- Please cite according to [APA7](#)
- Please use the provided title page
- Please add the affirmation on independent work. If you hand in your work as a group, everyone has to sign the affirmation (this can be done on the same document or by each handing in a separate affirmation).
- Please make sure to include all necessary Appendices (e.g., codebook, code sheet, R code, R working environment).

You will find information on how these presentations will be graded in the document “*Grading Scheme\_Term Paper*” on Moodle.

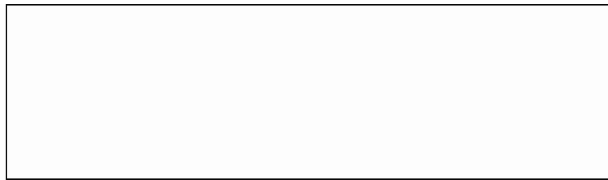


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## “Understanding the Flow of Digital Information via Computational Methods” (Fall 2023/2024)

Date	Phase	Session	Tasks & Deadlines before each class
20.10.2023	<b>Conceptualization of Research Design</b>	Session 1: <i>Introduction</i>	
27.10.2023		Session 2: <i>Theory Hackathon</i>	<u>Before class:</u> Read Thorson & Wells (2016); Wallace (2018)
03.11.2023		Session 3: <i>Research Design I</i>	
10.11.2023		Session 4: <i>Research Design II</i>	<u>Before class:</u> Upload screenshot of whiteboard; read Dienlin et al (2019)
17.11.2023	<b>Development of Research Methods &amp; Data Collection</b>	Session 5: <i>Introduction to R</i>	<u>Before class:</u> <b>Submit Graded Preregistration</b> (by Wednesday, 15 <sup>th</sup> ); Work through R Tutorials 1–2
24.11.2023		Session 6: <i>Introduction to R</i>	<u>No in-person meeting:</u> Individual work on Tutorials 3–5
01.12.2023		Session 7: <i>Introduction to R</i>	
08.12.2023		Session 8: <i>Introduction to Web Scraping</i>	<u>Before class:</u> <b>Submit Graded Task in R</b> (by Wednesday, Dec 6 <sup>th</sup> ); Work through R Tutorials 6–7
15.12.2023		Session 9: <i>Introduction to Web Scraping</i>	
22.12.2023		Session 10: <i>Data Collection</i>	<u>No in-person meeting:</u> Group work on data collection with R
12.01.2024	<b>Data Analysis</b>	Session 11: <i>Data Analysis I</i>	<u>Before class:</u> Finalization of data collection
19.01.2024		Session 12: <i>Data Analysis II</i>	
26.01.2024		Session 13: <i>Data Analysis III</i>	<u>Before class:</u> Finalization of reliability tests
02.02.2024		Session 14: <i>Term paper Q&amp;A</i>	
09.02.2024			<u>No in-person meeting:</u> Individual office hours for questions on term papers. Please book office hour until Wednesday, February 7 <sup>th</sup> , via Moodle.



## References

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