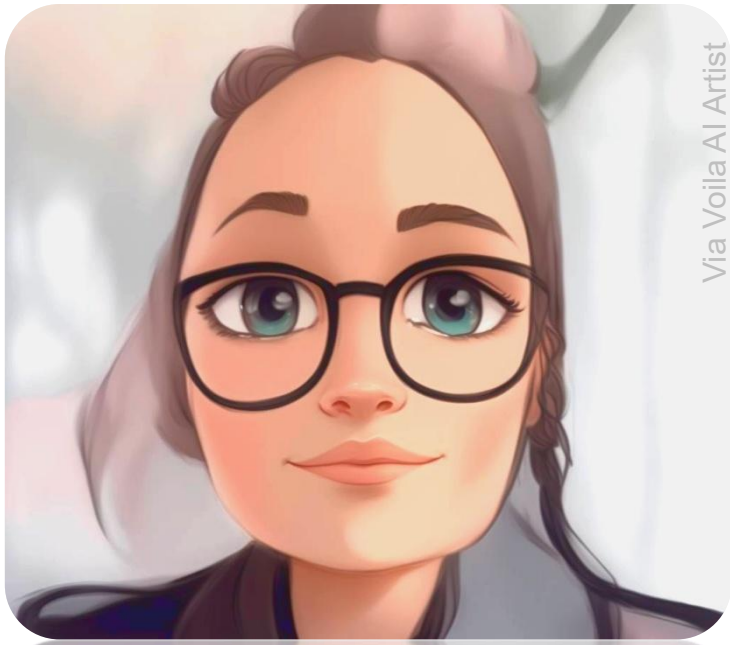
AI 507 – Research seminar AI & Society

#RS1 Introduction

Associate Prof. Dr. Lena Frischlich

Welcome!

- Lena Frischlich, Associate Professor and Vice-Director at the Digital Democracy Centre at SDU
- Interdisciplinary research centre – social sciences, law, computer science and humanities
- From Germany, studied in Cologne, worked in Muenster and Munich and went to school in Buenos Aires, Argentine
- In Odense since January 2024
- Background in psychology (specifically social and media psychology) and communication science
- Combine classic social science methods such as interviews content analyses, experiments, surveys with computational methods (mostly natural language processing and machine learning)



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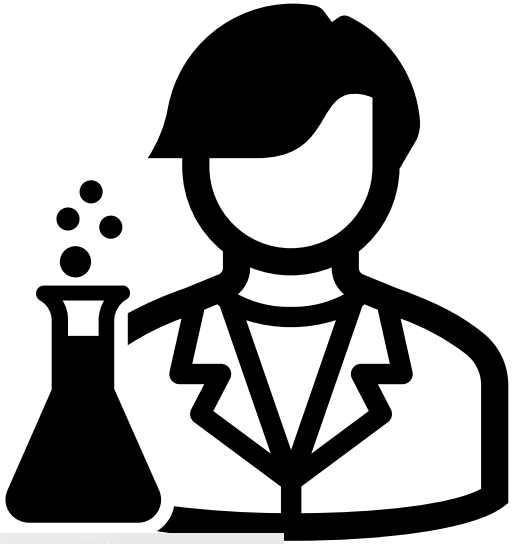
How about you?



I'll toss a virtual ball and ask you to stand up and tell everyone shortly

… your name

… what you liked most about your study program so far

… which programming language you like the most

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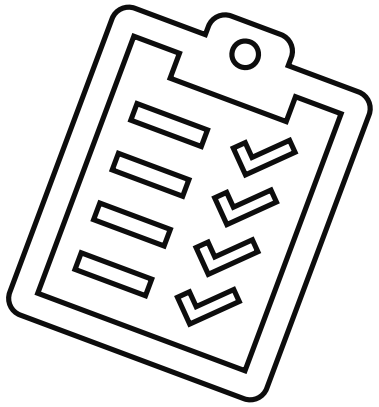
First things first: Formal aspects (1)

- This course is designed for students in the B.Sc. AI in the fourth semester
- You should already have acquired knowledge in AI501 (Introduction to AI) and AI 502 (Ethics)
- The course will be taught in English
- The course has two elements:
  - A research seminar (today and then always Tuesdays over lunch and sometimes Monday mornings)
    → here you get the tools to work with human data and study AI+ Society and acquire skills in project work and communication (#employable…)
  - A lecture (99% of the time on Thursdays, 2- 4 pm), more on that later this week
- The whole course will bring you 7.5 ECTS – expect 150 hrs of workload (1 ECTS = 20-30 hrs in the European System)
  Plan for ~10 hours per week (that is 4 hours of classes plus 6 hours outside of classes)
- The study program is planned for full-time, aka the workload across all courses corresponds to a full-time employment



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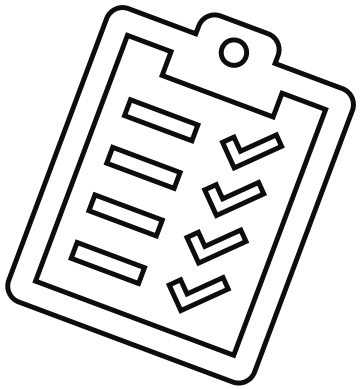
First things first: formal aspects (2)



- The course has a portfolio exam
- During the research seminar you will first get an introduction into social scientific research (February) and then work in small groups with a supervisor on your own project (24th of February - May)
- You will present the progress of your project to the class in three steps and submit written assignments documenting this progress – together these presentations and the three written assignments form the final research report and 50% of the portfolio grade
- Both elements are closely interwoven: The presentations ensure that you get feedback on your project that you can use to submit the written assignment in the week after the presentation
- The last part of the report is due by the end of classes (aka end of May)
- **Crucially: We are working in teams – you submit the group presentations and the report as a team**

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Why teams?

- Yes – that's why we practice
- Modern IT is teamwork – teams work fluently together partially over year
- Central skills: Organisation, clear roles and responsibilities and **communication**
- Same skills you need to interact with customers or lead teams → more on how to make teamwork suck less over the course of this semester

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As a reminder

Grade	Description	%	Decision
12	For an excellent performance, displaying a high command of all aspects of the relevant material, with no or only a very few minor weaknesses.	90-100	Surpasses the expectations
10	For a very good performance displaying a high level of command of most aspects of the relevant material, with no or minor weaknesses.	80-89	Passed
7	For a good performance displaying a good command of the relevant material but also some weaknesses.	70-79	
4	For a fair performance displaying some command of the relevant material but also some major weaknesses.	60-69	
02	For a performance meeting only the minimum requirements for acceptance	50-59	
00	For a performance which does not meet the minimum requirements for acceptance	40-49	Not passed
-3	For a performance which is unacceptable in all aspects	0-39	

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What are your questions so far?

Objectives of the seminar

At the end of the seminar, you will…

- ❑ …know the basics of the social scientific method
- ❑ …have deepened knowledge about one current research topic tackling AI & Society
- ❑ …be (more) experienced in working collaboratively in small research groups and employing AI to answer open (research) questions
- ❑ …able to evaluate social scientific research (better) and use AI to study societally relevant questions
- ❑ …have improved your skills in communicating your findings to others

BUT HOW?

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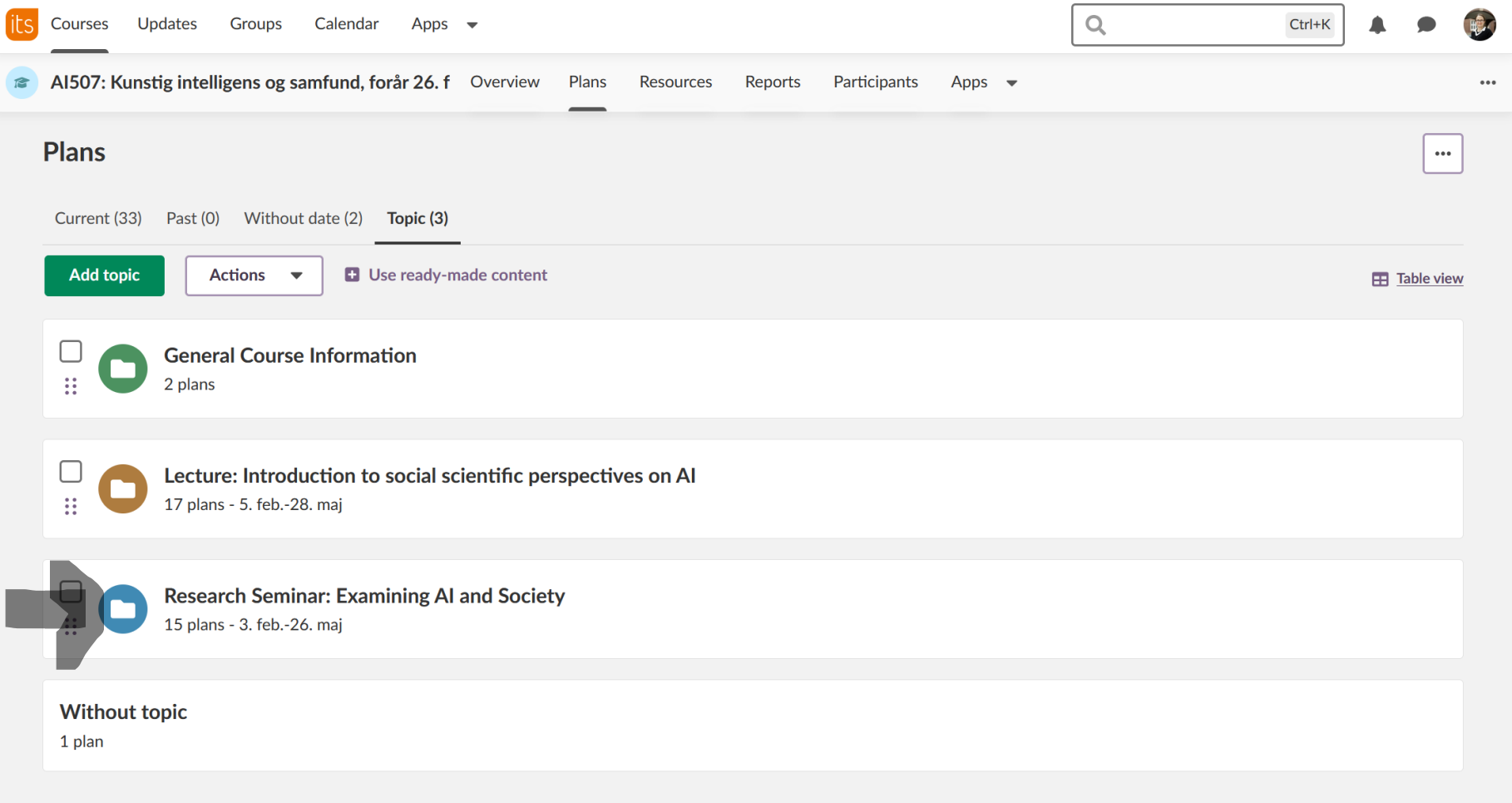
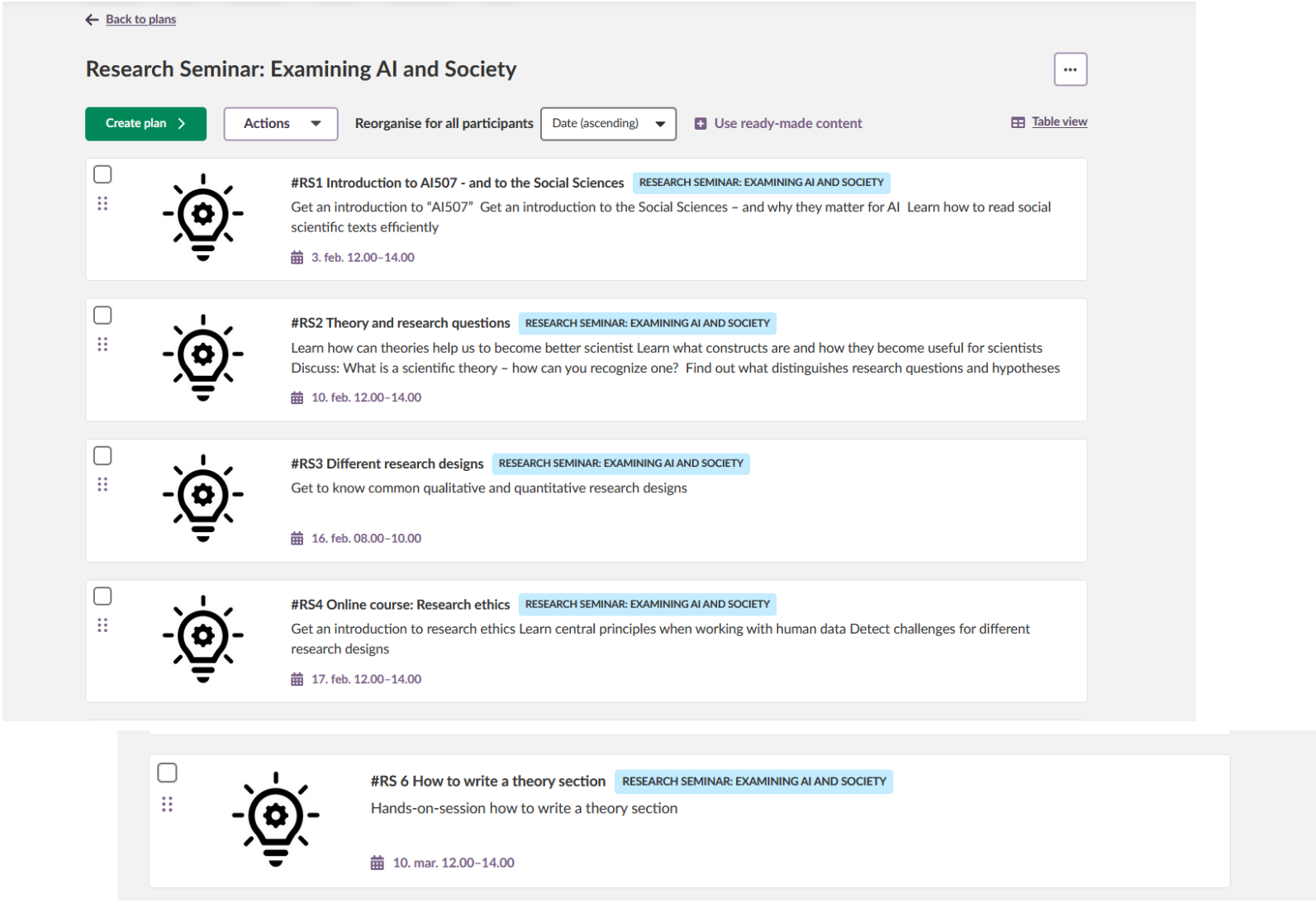
Seminar structure



The research seminar has two central parts

Introduction into social science methods

- Learn how use theory and how to identify research questions (→ Problem definition)
- Get to know different ways of answering your research questions (→ Toolkit)
- Learn how to work with human data in an ethical manner
- Learn how to write convincingly



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Research Project:

- Work with one of five supervisors on an open question

Curd Knüpfer, Political Science/ Political Communication

Anne Clausen, Computational Communication Science

Hannah Decker, Media Psychology

Lynge Asbjørn Møller, Journalism Studies

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The research seminar has two central parts

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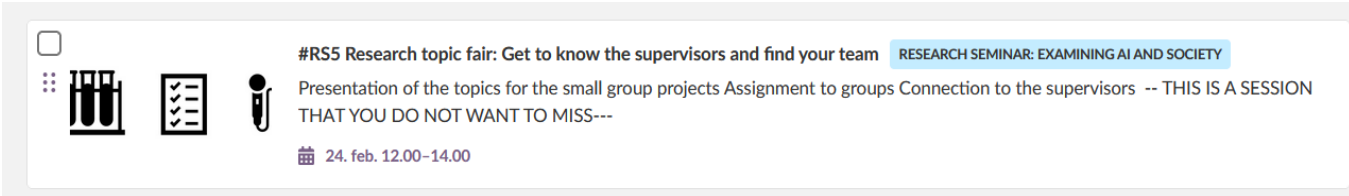
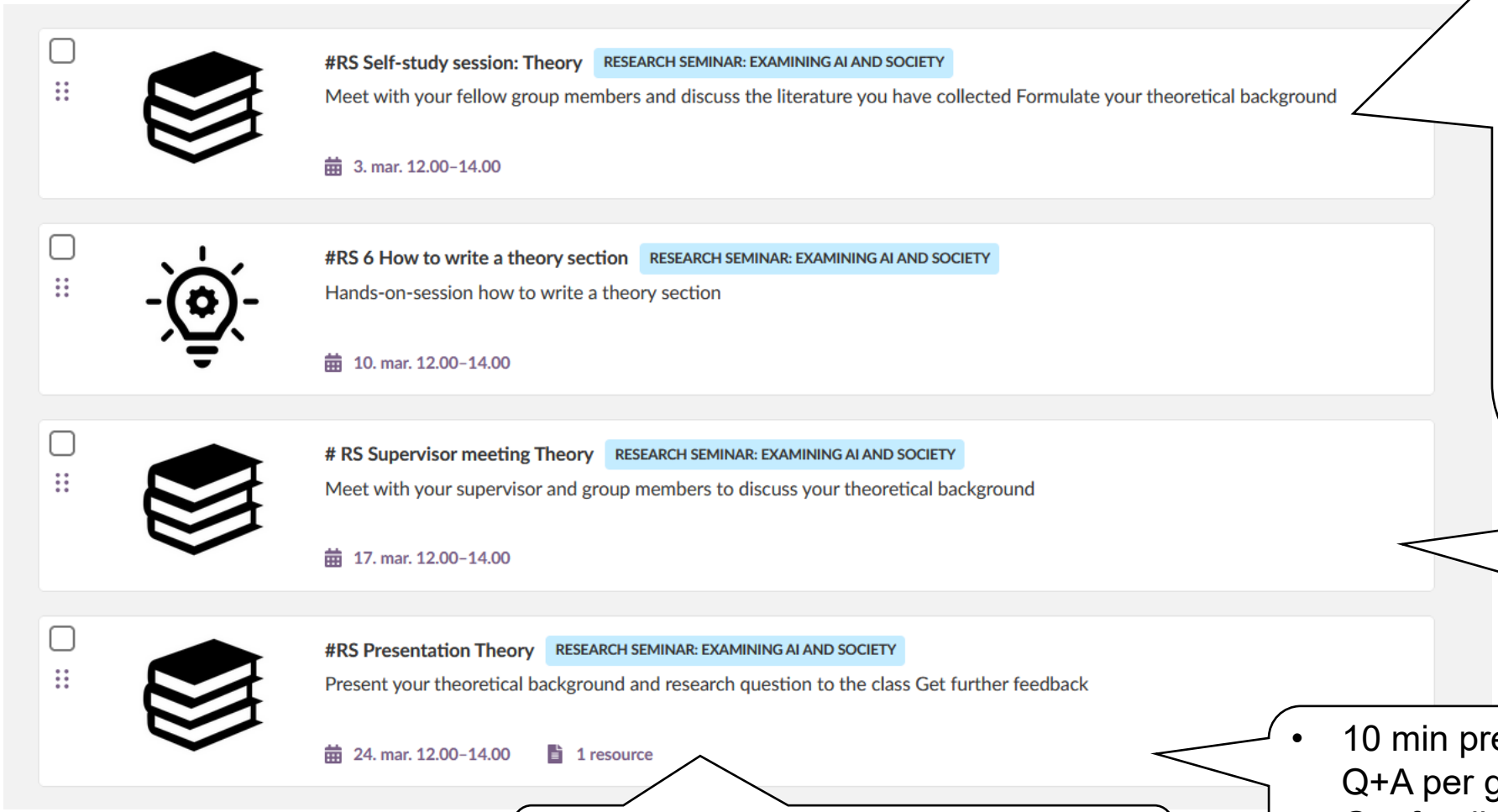
- Learn how to work with human data in an ethical manner
- Learn how to write convincingly

Research Project:

- Work with one of five supervisors on an open question
- Familiarize yourself with the theoretical background and problem definition
- Narrow down the methodological approach to answer this research question/ contribute to solving the problem
- Work in teams to implement your ideas and present your results



During the research project – typical workflow



How to make teamwork suck less #1

- Coordinating meetings sucks - use the time that is already blocked for the seminar for exchange
- Distribute tasks in advance, have a clear agenda and come prepared – no micromanagement but responsible behaviour

- Bring the results of your meeting and discuss what you want to present in class

- 10 min presentations, 5 min Q+A per group
- Get feedback for your assignment

- Short section of the report, due 7 days later – templates in Itslearning

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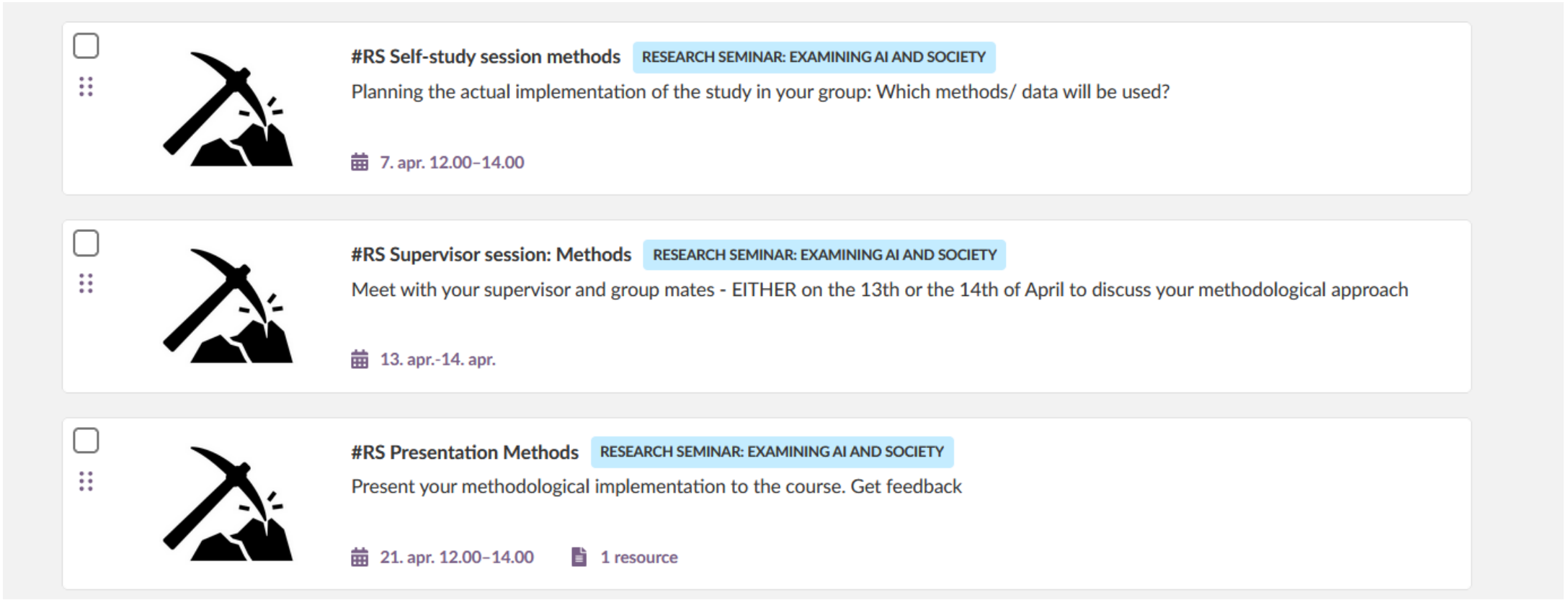

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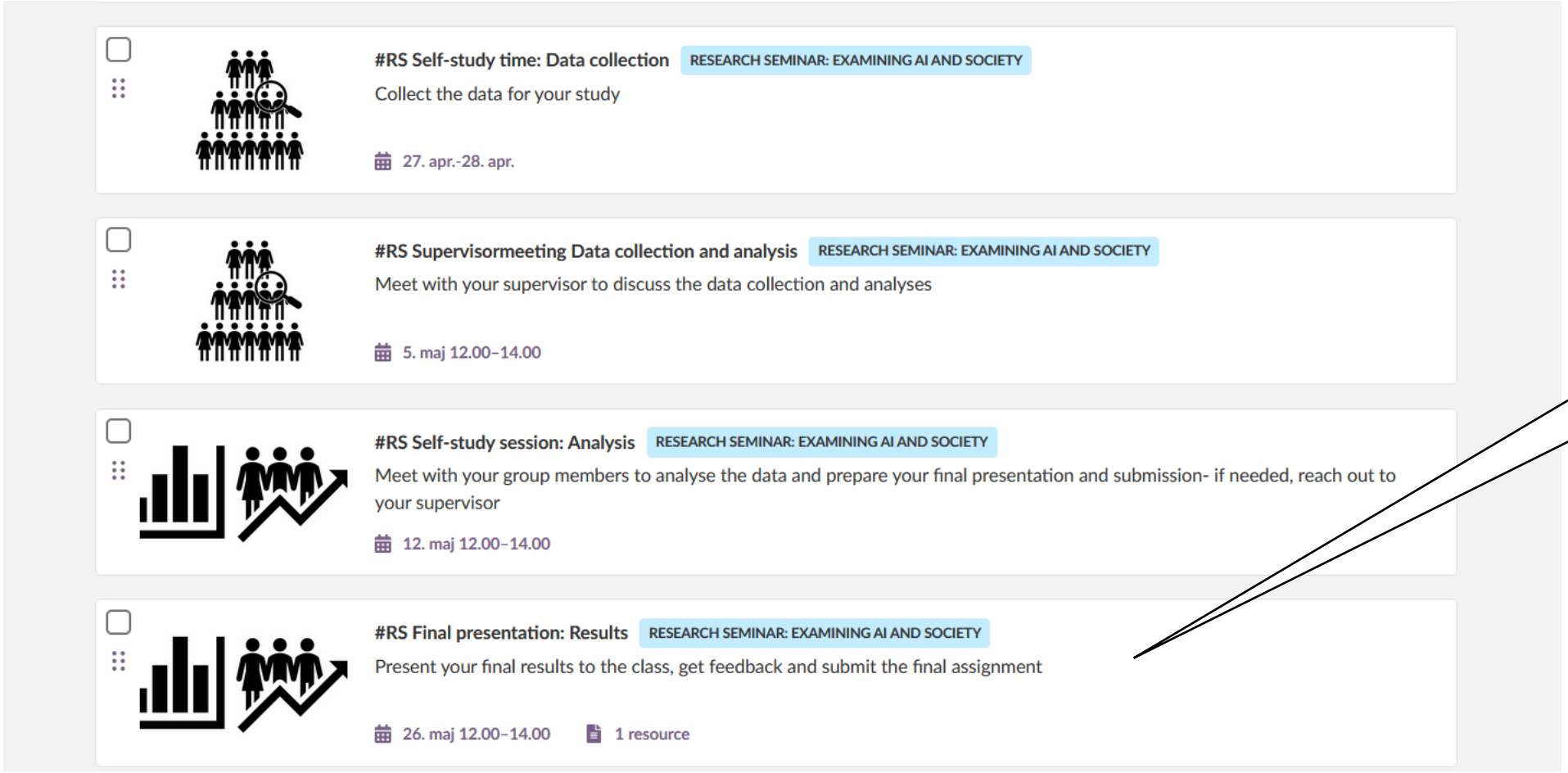
During the research project – typical workflow



With guests and cake

Some FAQs from prior seminars

- I have missed an input session – how do I obtain the knowledge?
  - Slides will be uploaded in itslearning (typically the day before the seminar)
  - Texts etc. will also be uploaded to itslearning
- I have a doctoral appointment/ family emergency that prevents me from being there for the topic fair – how do I select a topic?
  - (a) You have a trustworthy buddy who signs you both up for the topic you want to work on
  - (b) You write me an email, and I assign you to a group with free spaces
- I miss one of the group presentation sessions
  - Ensure that your group presents and compensate your fellow team members by taking over another task/ more at the next presentation (but remember that all tasks must meet the individual learning objectives, don’t overstretch it)
- I don’t know how to make a convincing presentation/ write a report
  - Don’t worry: That’s why you are here – you will find tutorials and materials in itslearning and get feedback over the course of the semester

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What are your questions so far?

Time for a break

Let’s get started: A short intro to the social sciences

At the end of today’s input session, you will…

- …know some of the core characteristics of social science (and why you can benefit from them)
- …have an idea of the ideal research circle
- …have learned why open science matters (and why submit your research report in three different assignments)

Why does my evil lecture force me to engage with social sciences?

Social scientists are experts for humans – their values, thoughts, actions, and communication patterns – that matters for you because

1. AI learns on big data – typically based on human behaviours and communicative traces, social science can help you to understand where the data comes from and predict how AI and humans will interact– especially relevant for synchronous learning
2. Plus: Likelihood to work with human data (e.g., AB-testing, interviews etc.)
3. AI attempts to mimic humans (more on Thursday) – but is far from reaching that ideal – get to know your target, before you start developing
4. You will likely work with people – in teams, with customers etc. the better your “human knowledge”, the more successful can you apply your AI knowledge

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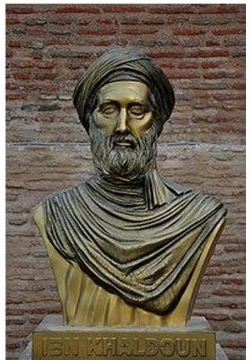
What are the social sciences?

- Social scientists try to understand humans
- Actions, values, beliefs
- Interactions with each other and their environment
- Structure of their societies
- Back then, today, and in the future
- E.g., psychology is the study of describing and influencing human experience and behavior; Anthropology is the study of people (past and present) with a focus on understanding the human condition

Very old attempt (Staines et al., 2023)

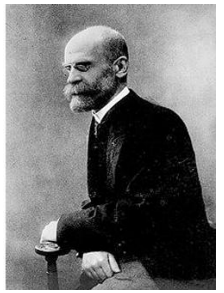
First comprehensive scholarly work (as far as we know today):

- Muqaddima von Ibn Chaldūn (1332-1406, Ägypten)
- In the Western world Renée Descartes (1596-1659) → Introduced the concept of rational thinking (“I think, therefore I am”)
- Generally: Increasing interest in moral Philosophy not only describe “what is” but also “what should be” → normative science
- 19th Century: Birth of Sociology with Émile Durkheim (1859 – 1917, studied “anomia and suicide”), Karl Marx (1818-1883, “the capital”) and Max Weber (1864-1920, “distribution of labour”

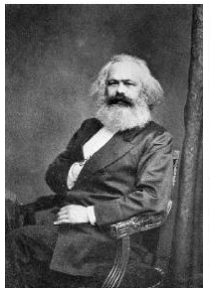


Ibn Khaldoun / Chaldūn in the entrance of the Kasbah of Bejaia, Algeria

Renée Descartes, via https://commons.wikimedia.org



Émile Durkheim https://www.clicksociologico.com/2017/03/emile-durkheim.html



Karl Marx Von John Jabez Edwin Mayall https://commons.wikimedia.org/w/index.php?curid=591288

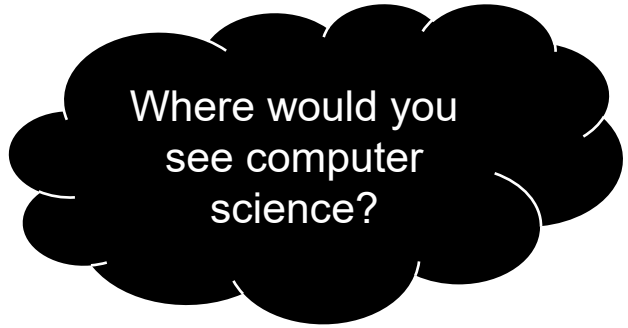
Max Weber by Ernst Gottmann https://commons.wikimedia.org/w/index. php?curid=9018349 5

Descriptive vs. normative science (Staines et al., 2023)

Descriptive: A descriptive claim or question tries to explain

- How things work
- What causes them to work that way
- How things relate to one another

Positivist account: The truth is out there

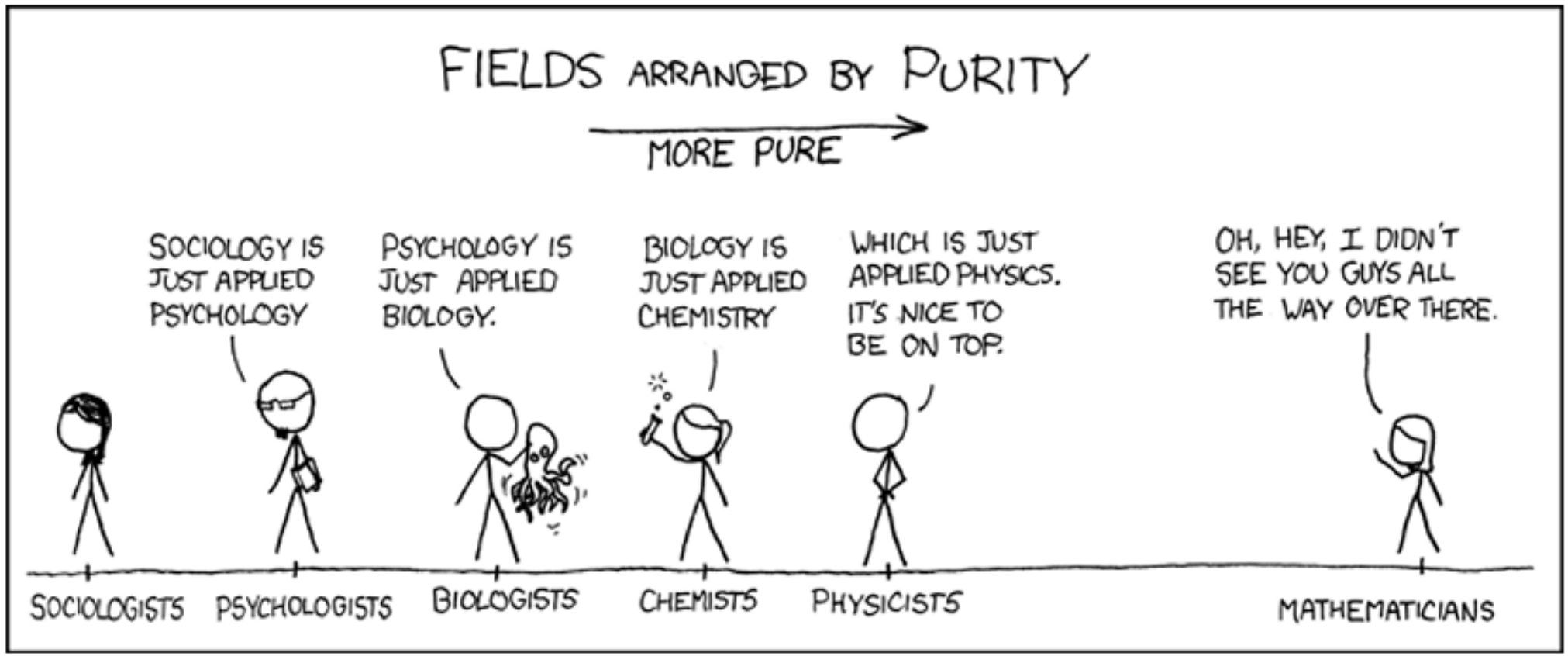


Normative: A normative claim or question seeks to explain

- How things ought to work
- Why they should work a certain way
- What should 19 change for things to work differentially

constructivist account: The truth is partially relative

Different fields are more or less strongly oriented towards the “pure” natural science

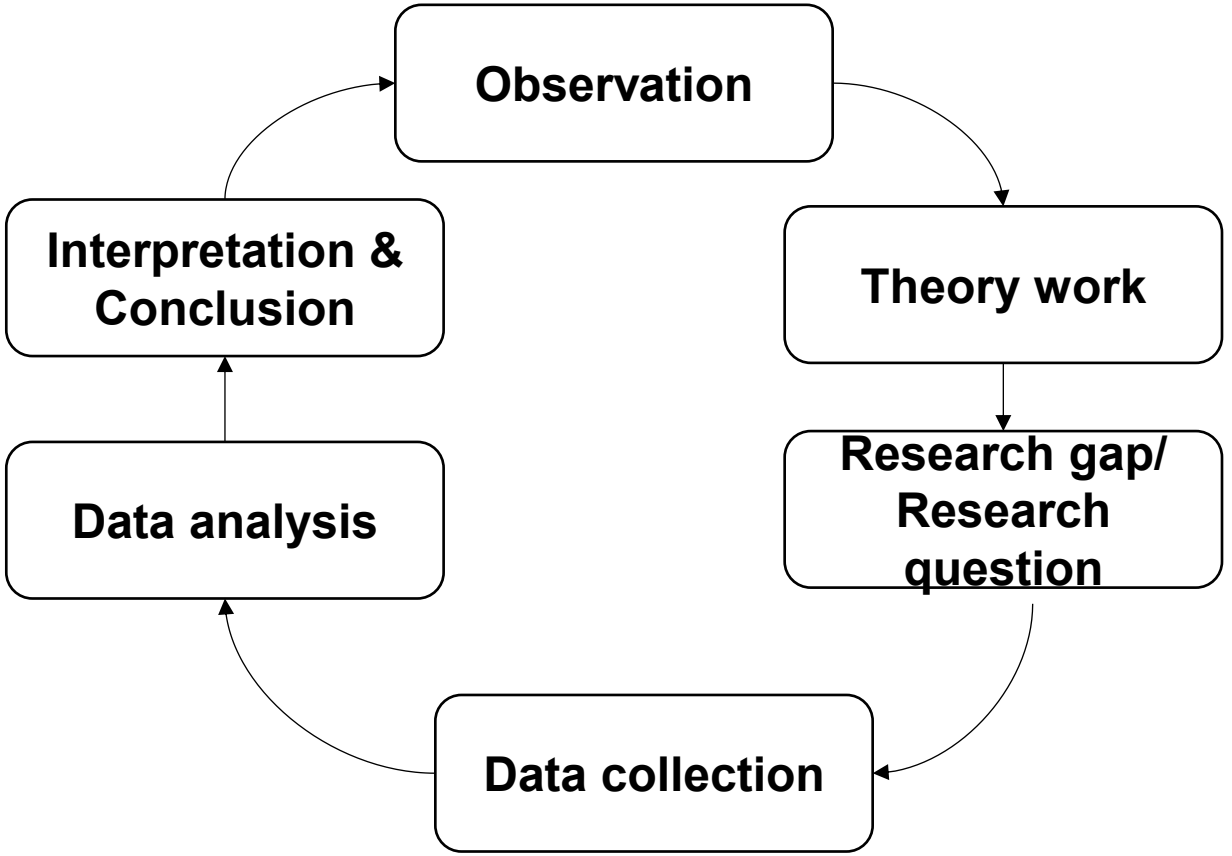


What connects them? (Staines et al., 2023)

Social scientists employ social scientific methods to study people

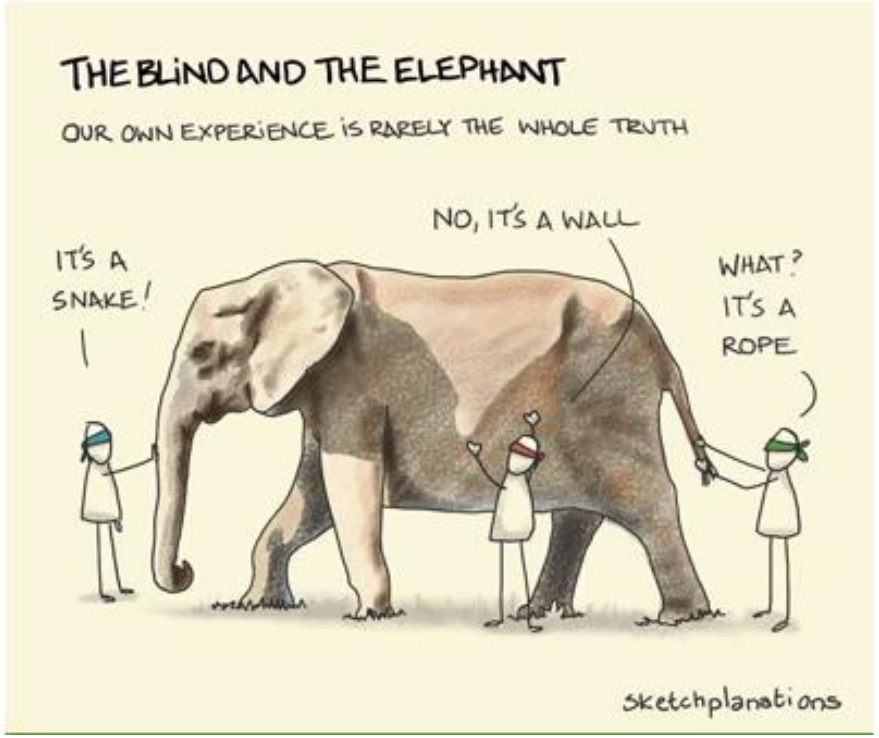
The ideal research circle

- We believe in data and objectivity
- We do – however – differ in the type of data we collect and in how we analyze it
- Partially depending on the history of different fields (natural science = positivism & observation vs. humanities = subjectivism & interpretation)



In sum:

- Different fields are differentially well-suited to answer different questions
- While the public discourse sometimes stages a clash between natural sciences, social sciences, and humanities – all of them have different strengths
- The social sciences have emerged from the attempt to understand humans
- Very different approaches (more on that next week) but unified by a methodological core – the reliance on empirical evidence and the belief in “the scientific method



What are your questions so far?

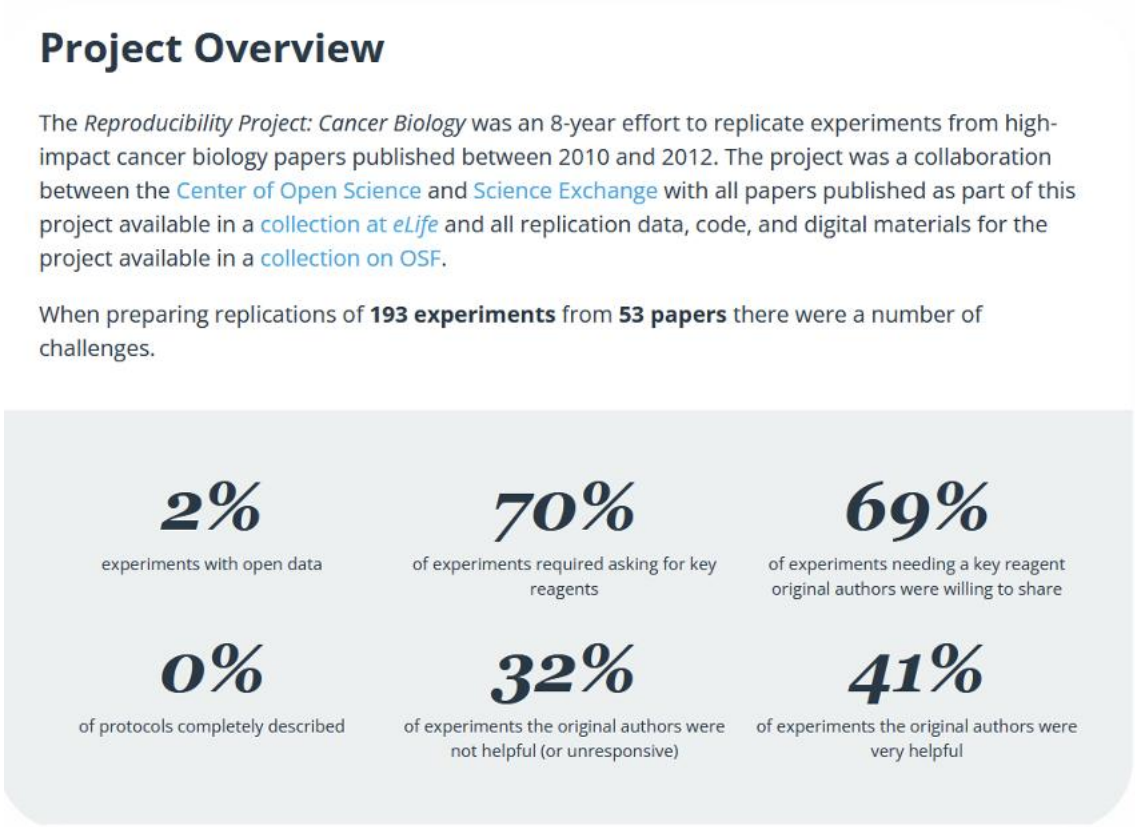
Why do we separate the assignments?

The EU's open science policy

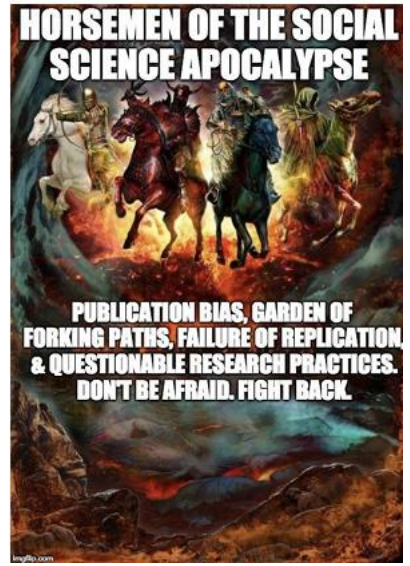
Open Science is at the centre of European research policy. Policies, initiatives and structures are developed and implemented to open up European science and research to make them more efficient and productive, seamless, transparent and robust as well as responsive to policy and society needs and expectations.

The call for open science (https://www.cos.io/rpcb)

- Catalyzed by different scandals around fake data and the observation that doing the same study again does often not produce the same results
- E.g., only 46% of 50 famous experiments in social psychology replicated successfully
- Partially because people commit fraud (e.g., Arie Kruglanski likely faked his famous paper about honesty)



But also: The science apocalypse



Publication bias: results are more likely to be published when…

- … they confirm the expectation
- … they have fancy findings
- … the effects are statistically significant

Wrong incentives in the system: Publish or perish

- So, you run analysis after analysis to find something
- Or you adapt your hypotheses afterwards (HARKING)
- You exclude enough cases so that the results become significant
- You only talk about analyses that look good
- You (even unintentionally) select analytical approaches in line with your expectations
- In short, you overfit your model to the data

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Open science tries to reduce the risk by…

- Pre-registration: Note down what your theory and expectations are *in advance* (assignment 1)
- Share your
  - Materials (what is necessary to do the same study again)
  - Data
  - Plan your analysis in advance (assignment 2)

➢ Sharing should be F.A.I.R. – findable, accessible, interoperable, reusable

We want reproducibility and replicability (the same study should lead to the same results, and the same methods should lead to the same results in different contexts)

- By splitting up the assignments, you get first hand experiences in how much you change during a project – and at the end of the semester you would likely have done things differently than at the start – this is what we call a learning curve

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So, I hope

You have now…

- …learned more about some of the core characteristics of social science (and why you can benefit from them)
- …have an idea of the ideal research circle
- …have learned why open science matters (and why submit your research report in three different assignments)

AI 507 – Research seminar AI & Society

Have a wonderful rest of the day!

Associate Prof. Dr. Lena Frischlich

Bibliography

Staines, Z., Hoffstaedter, G., & Binnie, N. (2023). What are the social sciences? In *Introduction to the Social Sciences* (pp. 3–12). uq.pressbooks.pub. https://uq.pressbooks.pub/introduction-social-sciences/chapter/what-are-social-sciences/