Integrating a mandatory and hands-on course on Open Science and Reproducible Research into the ….. Curriculum

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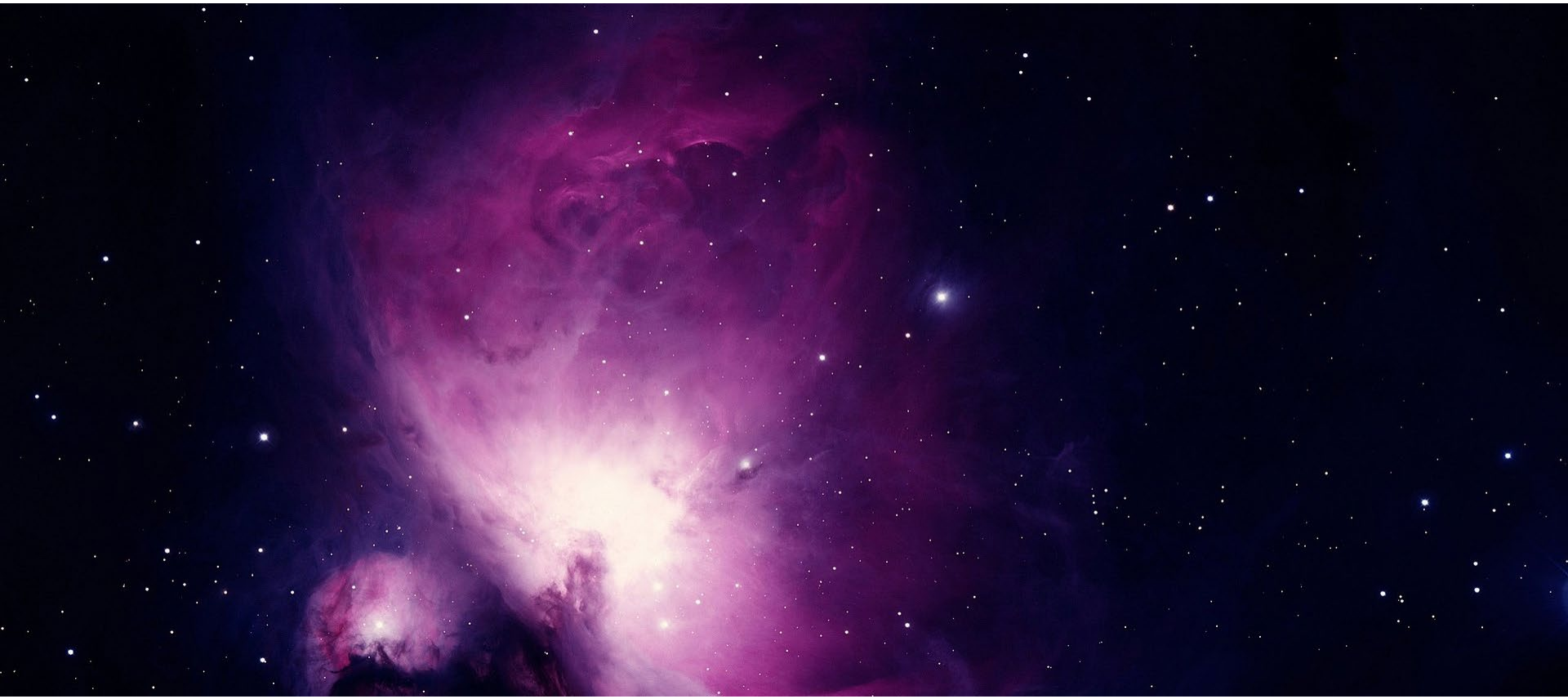

Dr. David Philip Morgan
University of Mannheim, Open Science Office + Mannheim University Library

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Part 1:

Motivations/process for an Open Science course in the Mannheim Masters in Social Data Science

Part 2:

Open Science and Reproducible Research curriculum

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Motivations… for an Open Science course in the Mannheim Masters in Social Data Science (MMSDS)

Part 1:
Motivation

Open Science at the end stages

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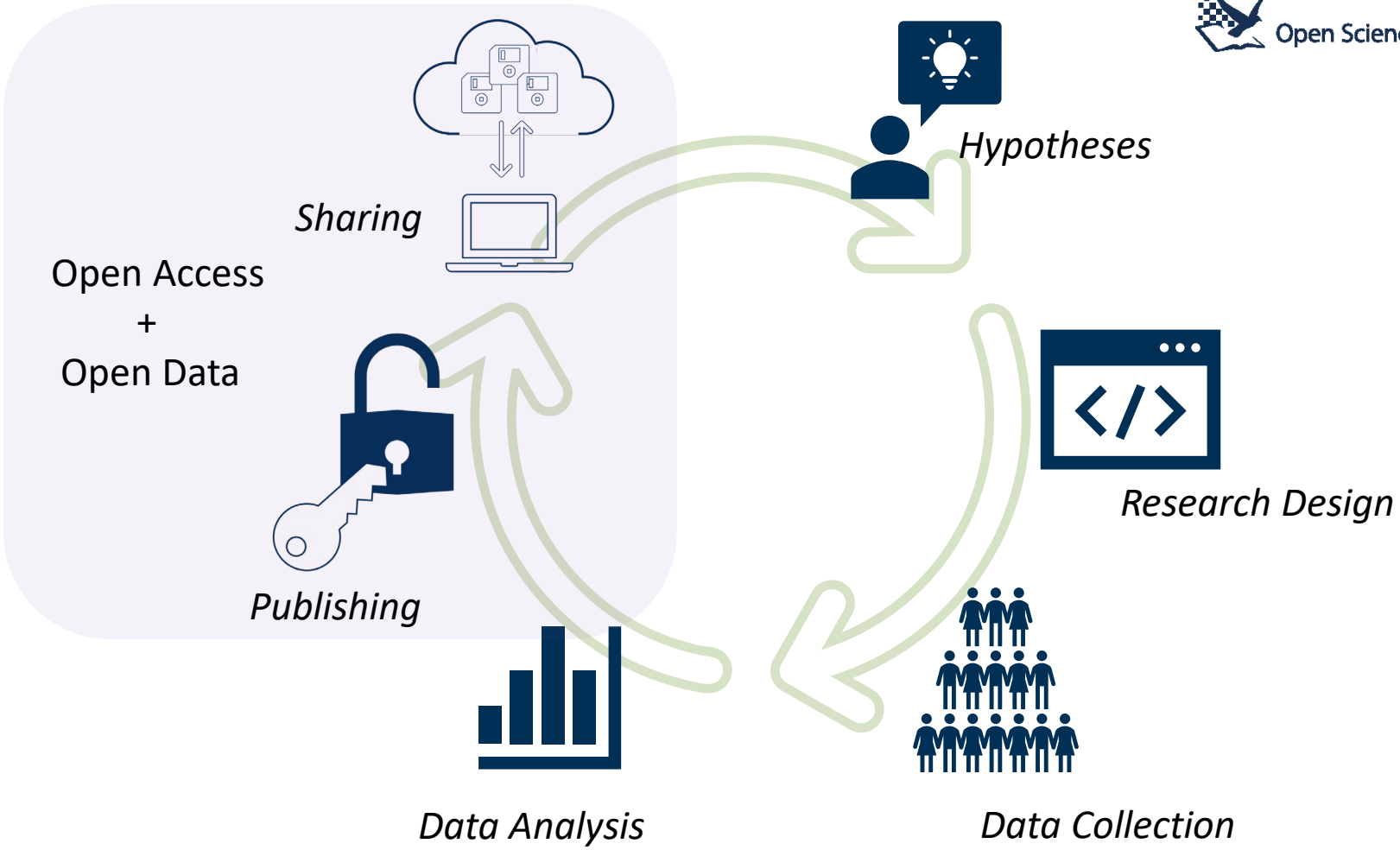

Open Science in the research life cycle

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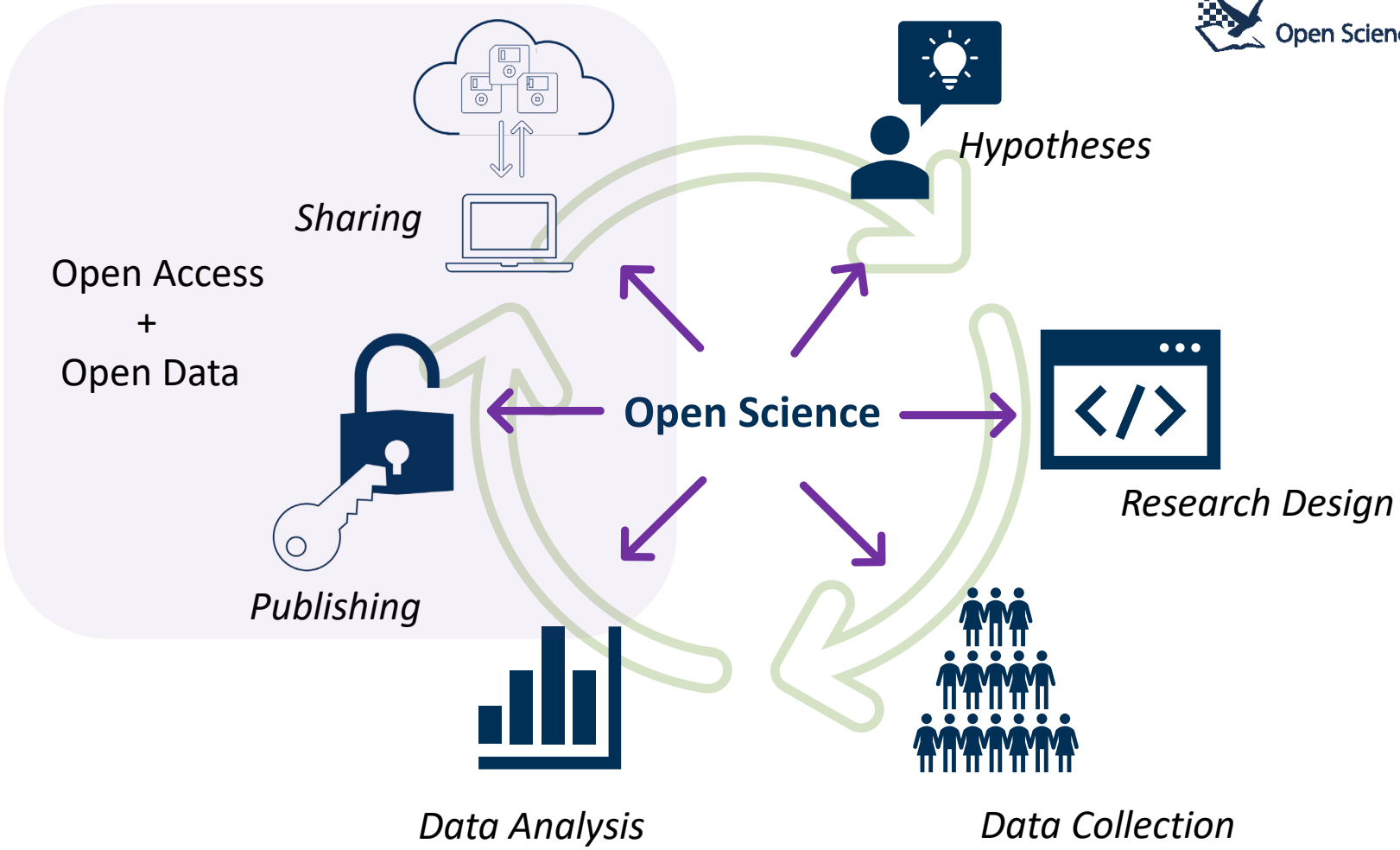

The Open Science Office

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Open Science Office

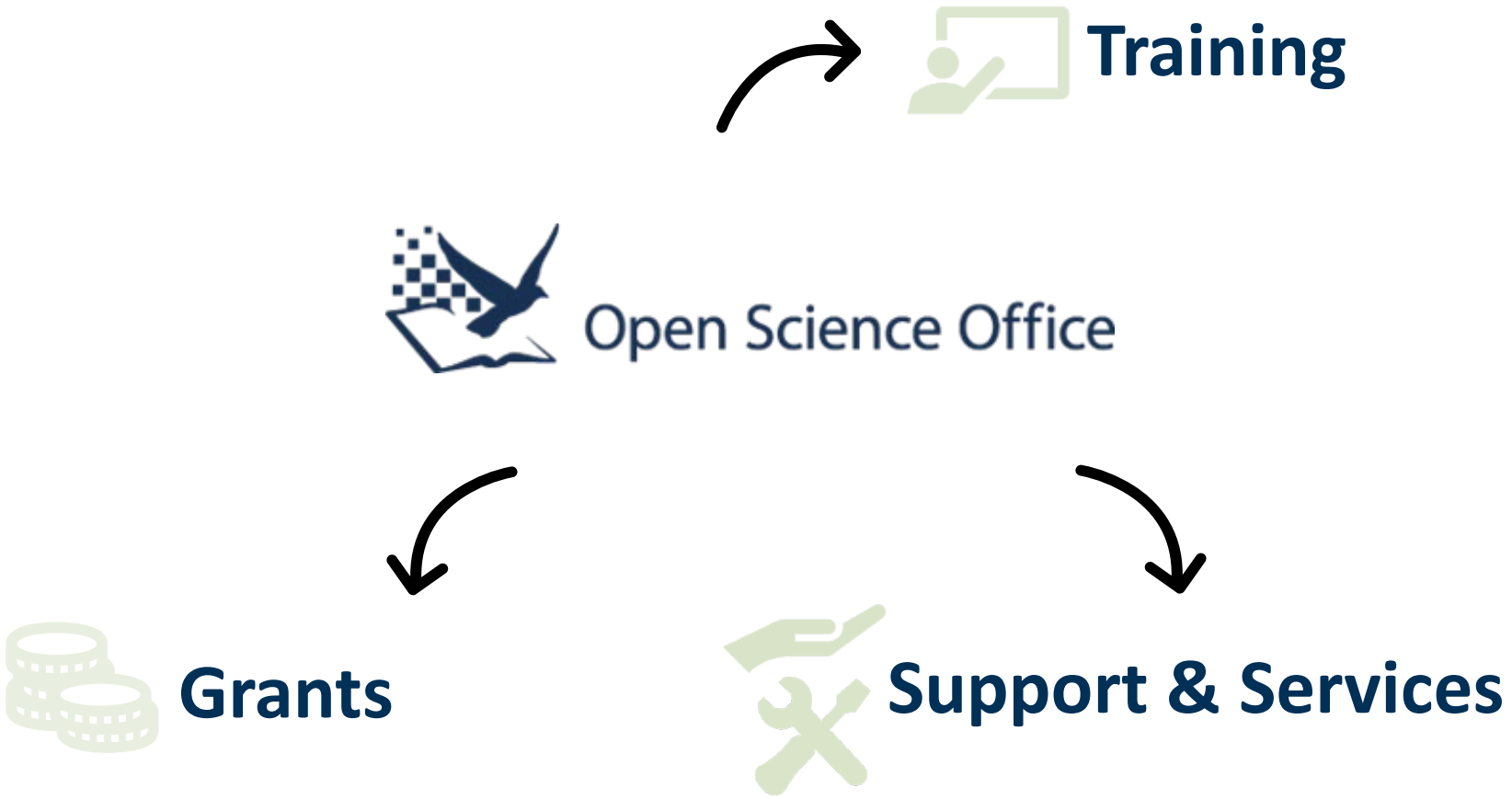
Supporting Researchers with Open Science

Open Science Office

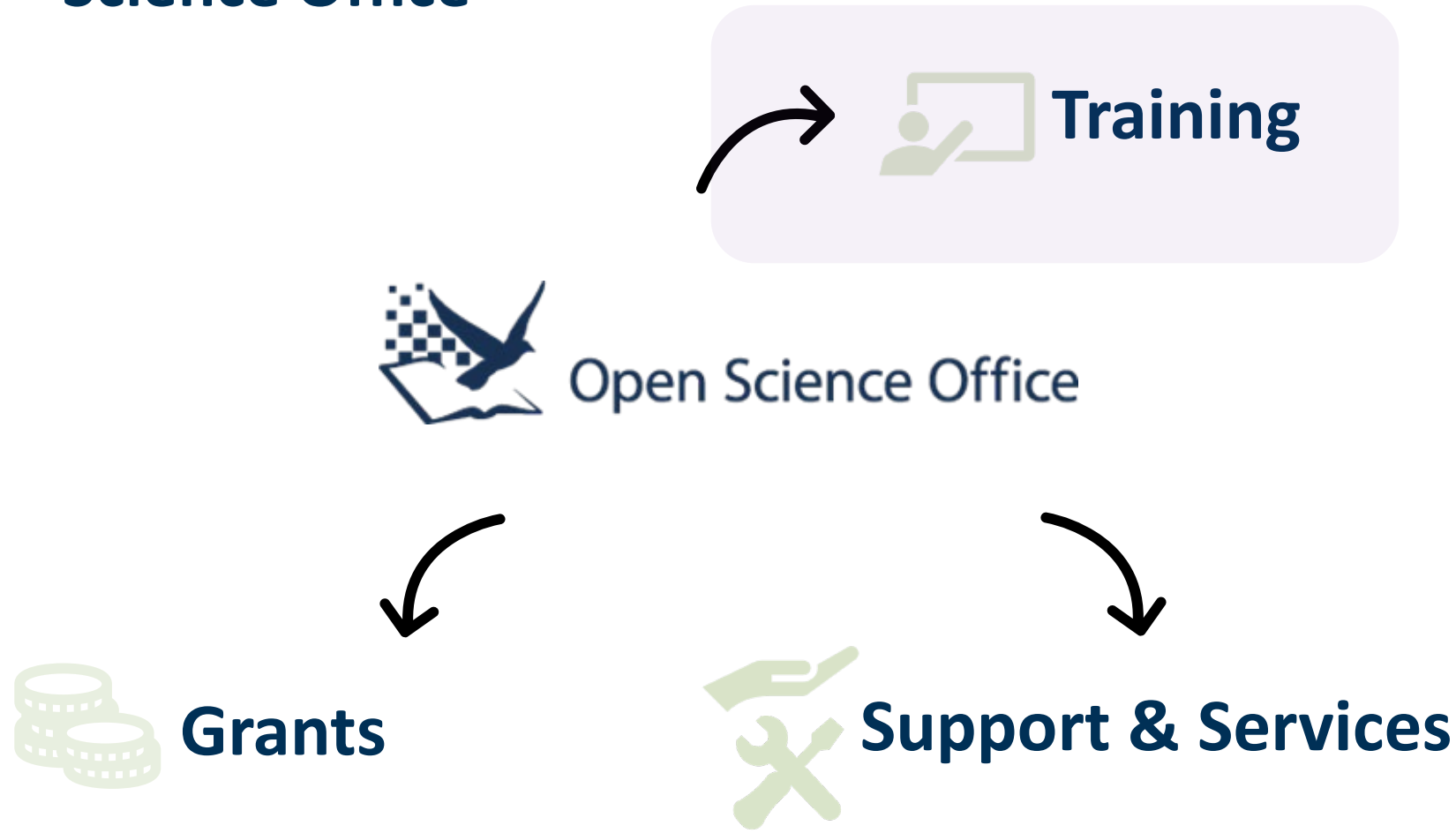
Embedded within UB and the Scientific Advisory Board since 2021

- Central point for all Open Science questions
- „forward“ OA and RDM questions to the respective teams
- Focus itself to support other Open Science practices (Open Science Services)

Core Dimensions of the Open Science Office



Core Dimensions of the Open Science Office



Open Science Seminar – Spring Semester 2023

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21. Feb.	14:00 - 15:00	Ph.D. David Philip Morgan **Introduction to Open Science** Open Science Office
07. Mär.	14:00 - 15:00	Ph.D. David Philip Morgan **Replication Crisis** Open Science Office
14. Mär.	14:00 - 15:00	Ph.D. David Philip Morgan **Citizen Science** Open Science Office
23. Mär.	14:00 - 15:00	Ph.D. David Philip Morgan **Data Management Plans** Open Science Office
18. Apr.	14:00 - 15:00	Dr. Stefanie Müller **PsychNotebook: Create, share, and export your code projects** Open Science Office
09. Mai.	15:00 - 16:00	Sebastian Karcher **Transparency in Qualitative Research** Open Science Office
16. Mai.	14:00 - 15:00	Dr. Philipp Zumstein **Docker for Reproducible Research** Open Science Office
23. Mai. ExpLAB	14:00 - 15:30	Ph.D. David Philip Morgan **Pre-registration Workshop** Open Science Office
21. Jun.	14:00 - 15:00	Camille Landesvatter **Reproducible Manuscripts** Open Science Office

https://www.bib.uni-mannheim.de/lehren-und-forschen/research-skills/

Other formats

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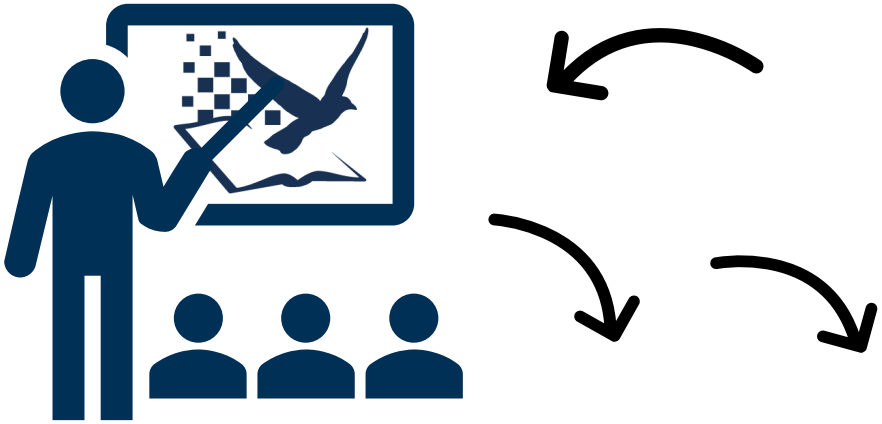

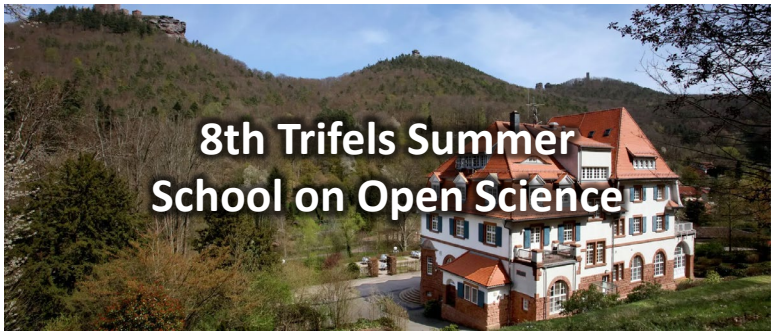

Discipline specific training

Workshops

Events

Limitations

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Current Open Science training oppurtunities are not cumpulsory for researchers to attend

Potentially reaches researchers too late were it becomes difficult to change research workflows – different target audience

Adding the training we provide to existing programs may prove difficult

Open Science Office X Data Science

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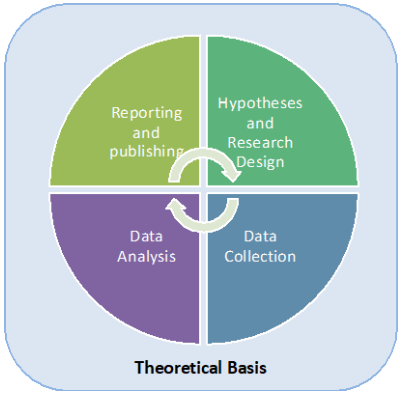
Prof. Dr. Heiner Stuckenschmidt

Developing the Open Science Module

Open Science and Reproducible Research



* Mannheim Masters in Social Data Science (MMSDS)

Interim Take-homes

University-wide Open Science events and interactions with existing researchers + decision makers promoted them to think about Open Science when creating a new program

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Open Science and Reproducible Research curriculum

Part 2:
Open Science and Reproducible Research curriculum

Open Science in the research life cycle

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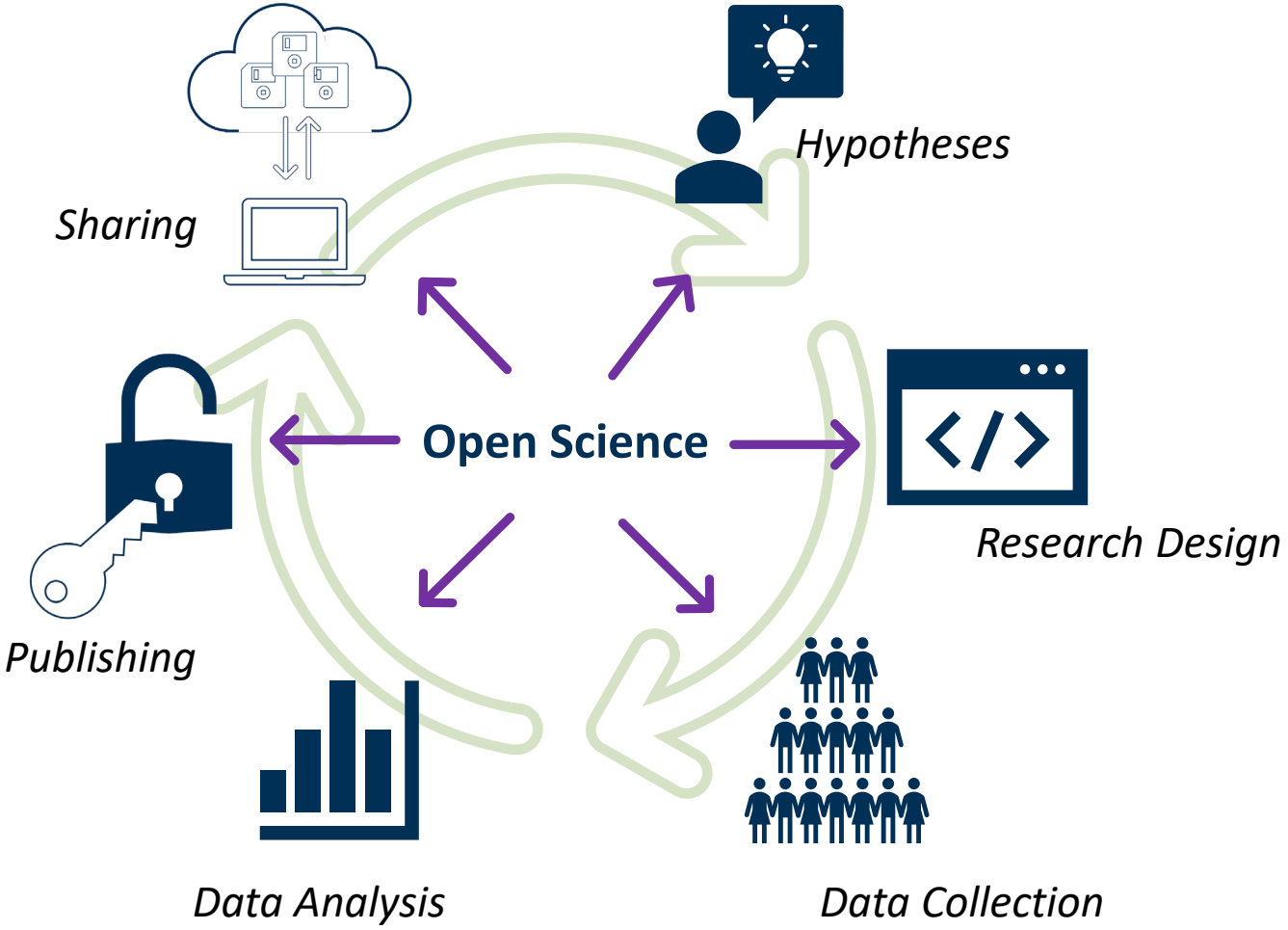

Structure of Open Science and Reproducible Research

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Hours per semester present: 28 h (2 SWS)

- Lectures (conceptual issues in Open Science)
- Workshops (practical exercises focused on skills)

Self-study: 62 h per semester

- 28 h: pre and post lecture studying and revision
- 34 h: exercises + report writing

Compulsory module taking place before students begin their Master's thesis (1st or 3rd semester).
Students are awarded 3 ECTS points.

Key goals of the course

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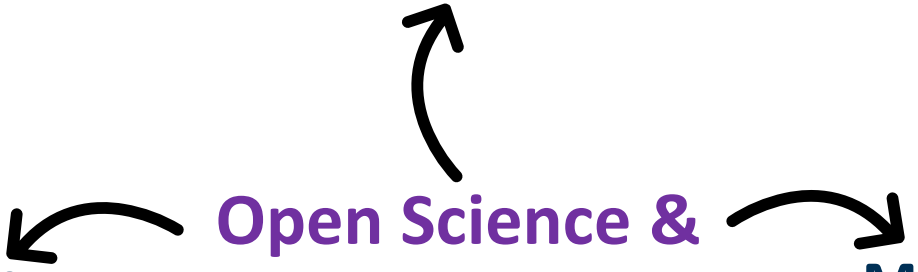
The students will know Open Science principles and understand how reproducible research can be done

Expertise



Open Science & Reproducible Research

Personal Competence

Students will be able to assess where and which Open Science practices can be implemented within their own and others' research.

Methodological Competence

Students will be able to implement a diverse range of Open Science practices tailored for their research purposes.

Our course curriculum

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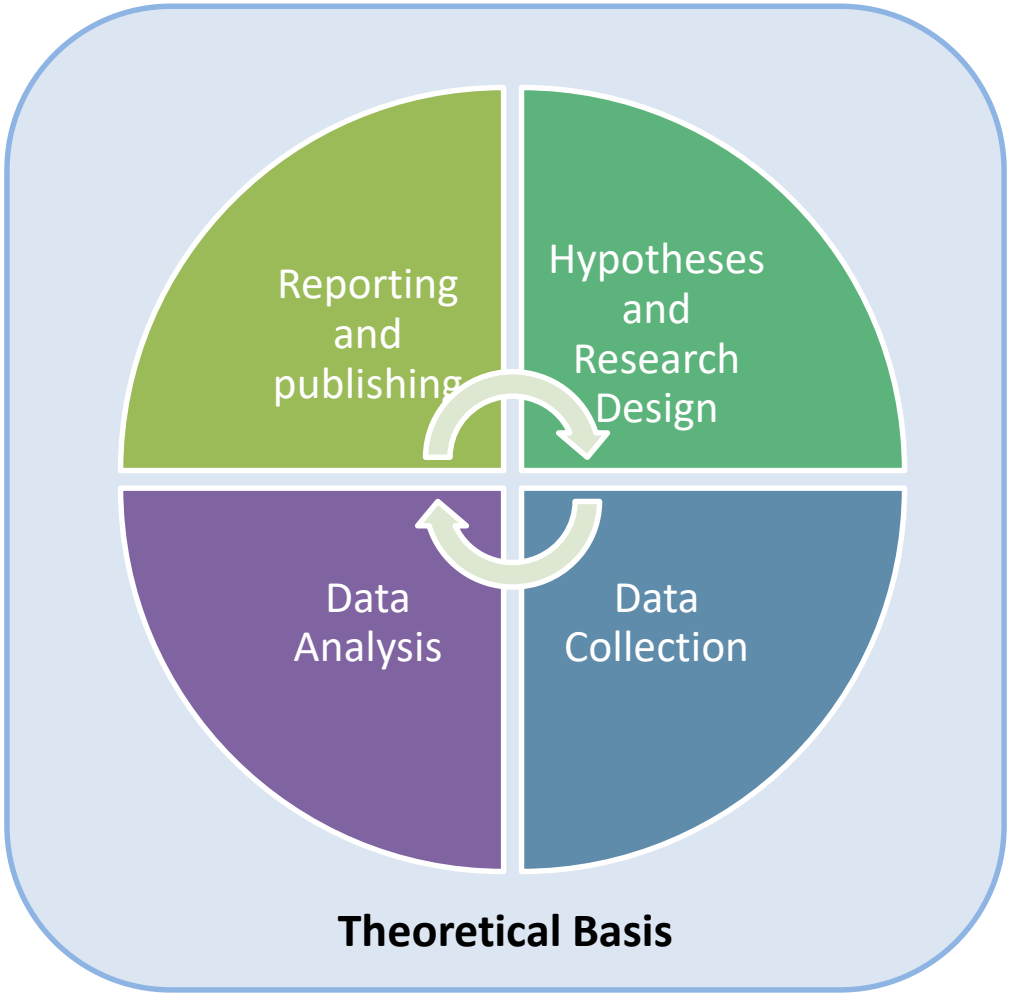

Addresses key practical components of Open Science that are relevant to the research process.

In addition to providingthe theoretical basis and conceptual knowledge for Open Science.

Course – Curriculum*

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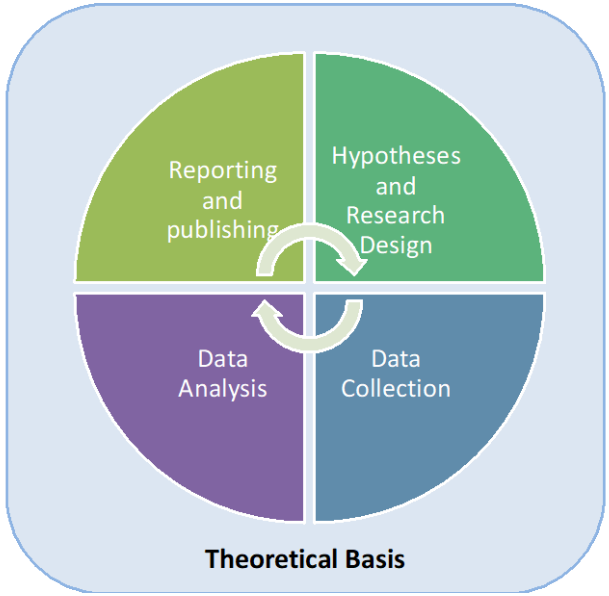
Topic	Key Goal
Introduction to Open Science	Expertise
Replication Crisis	Expertise
Pre-registration	Methodological competence
Registered Reports	Expertise
Reproducibilty Crisis	Expertise
Open Data	Methodogical competence
Open Code	Methodogical competence



*Masters course is still under development with first cohort expected to begin in late 2024

Course – Curriculum*

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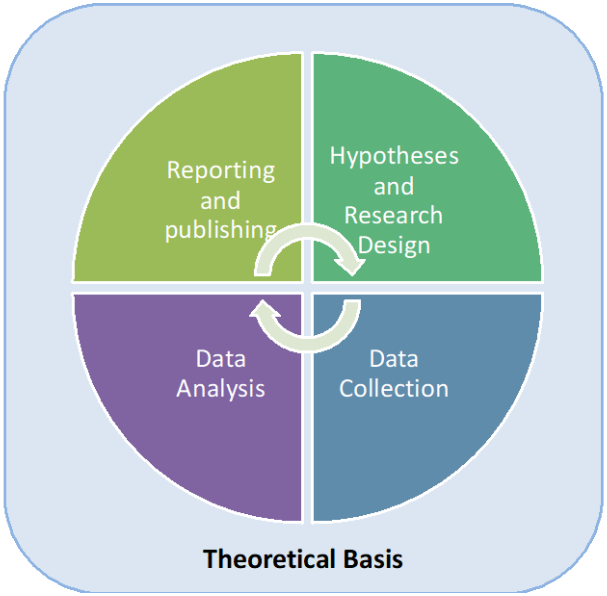
Topic	Key Goal
Documenting Data and Code	Methodological competence
Reproducible Manuscripts	Methodological competence
Reproducibility Hackathon	Personal competence
Open Access	Expertise
Citizen Science	Expertise
Open Science Day	Personal competence
Political + Legal issues	Expertise
Future Directions	Expertise



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Let‘s stop talking and start doing!

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Studens learn better by doing, so let’s do Open Science!

OSF PREREGISTRATION

ReproHack

quarto®

OSF

docker

jupyter

GitHub

Open Science and Reproducible Research – Assessment*

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Task:

1. Reproduce results of a published experiment
2. Preregister reproduction and explorotory analyses
3. Document challenges faced

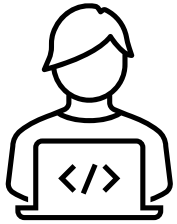
Written Report

Pass/Fail – no grade assigned

Students are provided drop in sessions to tackle issues that they encounter along the way

Dataset and code

Preregistration



Analyse data

quarto

Write-up “reproducible manuscript“

*Masters course is still under development with first cohort expected to begin in late 2024

Questions for you

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Have we missed any important topics in our curriculum?

Do you have experience with a similar assessment? Is it realistic to ask that much from the students?

How do we check that the articles and code are suitable for the assessment?

Contact

Open Science Office

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Open Access Representative of the University of Mannheim

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