

Training plan for 4.1 Data and Analysis Stewardship

The lecture on **Data and Analysis Stewardship** aims to prepare students with a non-medical background for working with human data in a responsible manner, from an ethical perspective as well as from the reproducible research point of view.

Objectives

1. The students will become aware of various aspects of data and analysis stewardship in the field 'omics epidemiology'
2. The students will become aware of basic IT security considerations when analysing data
3. The students will become aware of the various ethical constraints when working with human research data
4. The students will get introduced to practical ways of doing reproducible research

Learning outcomes

1. The students will be able to identify weak points in the way they or their co-workers handle data w.r.t. basic IT security, reproducibility and data provenance
2. The students will be able to identify and assess ethical issues in their own research
3. The students will be able to discuss and argue ethical issues currently faced in the life sciences

Training plan for 4.2 GDPR, open science and FAIR data

Objectives:

- To raise awareness of distributed learning
- Data visiting and FAIR data in relation to GDPR

Learning objectives:

Students will be 'consciously incompetent' about complex data stewardship issues and will be convinced that data stewardship is a new profession.

Prior knowledge:

To read the attached FAIR Issue announcement.

Special Issue on Emerging FAIR Practices Published in *Data Intelligence*

Recently, a special issue on The FAIR Principles: First Generation Implementation Choices and Challenges, has been published in [Data Intelligence](#). This special issue, organized by [Prof. Dr. Barend Mons](#), Founder of FAIR Principles and President of CODATA, Dr. Erik Schultes and Dr. Annika Jacobsen, contains 28 articles authored by 135 experts from 14 countries/territories worldwide.

In this special issue, the original conception of the FAIR principles and what they are intended to cover is explained in detail (see https://www.mitpressjournals.org/doi/abs/10.1162/dint_r_00024), and the prototype of FAIR Implementation Profile and the FAIR convergence Matrix which aims to coordinate a broadly accepted, widely used FAIR implementation approaches is presented (see https://www.mitpressjournals.org/doi/abs/10.1162/dint_a_00038). The first 16 articles are bundled as a relevant set of “first generation” implementations and emerging practices in the context of FAIR and the last 12 articles focus more on gaps in existing technology and practices encountered or envisioned, and offer opinions and propose directional solutions for the relevant communities to develop FAIR guided approaches. Although this special issue only has covered a limited number of all early endeavors, “it will likely inspire other efforts to bundle and expose useful and hopefully reusable solutions”, as stated by Prof. Dr. Rianne Letschert in her brief [introductory comment](#) to this special issue.

All of the articles in this special issue have been put together into one single PDF file for your convenience to download with one click at <http://www.data-intelligence.org/p/67/>.

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- 1 The FAIR Principles: First Generation Implementation Choices and Challenges
Barend Mons, Erik Schultes, Fenghong Liu & Annika Jacobsen
 - 2 FAIR Principles: Interpretations and Implementation Considerations
A. Jacobsen, R. de Miranda Azevedo, N. Juty, D. Batista, S. Coles, R. Cornet, ... & E. Schultes.
 - 3 Unique, Persistent, Resolvable: Identifiers as the Foundation of FAIR
Nick Juty, Sarala M. Wimalaratne, Stian Soiland-Reyes, John Kunze, Carole A. Goble & Tim Clark

4 Making Data and Workflows Findable for Machines

Tobias Weigel, Ulrich Schwardmann, Jens Klump, Sofiane Bendoukha & Robert Quick

5 The “A” of FAIR – As Open as Possible, as Closed as Necessary

Annalisa Landi, Mark Thompson, Viviana Giannuzzi, Fedele Bonifazi, Ignasi Labastida, Luiz Olavo Bonino da Silva Santos & Marco Roos

6 A Generic Workflow for the Data FAIRification Process

Annika Jacobsen, Rajaram Kaliyaperumal, Luiz Olavo Bonino da Silva Santos, Barend Mons, Erik Schultes, Marco Roos & Mark Thompson

7 Ontology-based Access Control for FAIR Data

Christopher Brewster, Barry Nouwt, Stephan Raaijmakers & Jack Verhoosel

8 FAIR Data Reuse – the Path through Data Citation

Paul Groth, Helena Cousijn, Tim Clark & Carole Goble

9 Making FAIR Easy with FAIR Tools: From Creolization to Convergence

Mark Thompson, Kees Burger, Rajaram Kaliyaperumal, Marco Roos & Luiz Olavo Bonino da Silva Santos

10 Distributed Analytics on Sensitive Medical Data: The Personal Health Train

Oya Beyan, Ananya Choudhury, Johan van Soest, Oliver Kohlbacher⁵, Lukas Zimmermann, Holger Stenzhorn, Md. Rezaul Karim, Michel Dumontier, Stefan Decker, Luiz Olavo Bonino da Silva Santos & Andre Dekker

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About [Data Intelligence](#)

Data Intelligence (DI) journal, a new publication jointly launched by the MIT Press and Chinese Academy of Sciences. It is chaired by Prof. Barend Mons. Co-Editors in Chief of the journal are Prof. Jim Hendler at Rensselaer Polytechnic Institute, USA, Prof Huizhou Liu, the Chinese Academy of Sciences and Prof. Ying Ding at University of Texas at Austin.

Data Intelligence is an open-access, metadata-centric journal intended for data creators, curators, stewards, policymakers, and domain scientists as well as communities interested in sharing data. DI informs industry leaders, researchers, and scientists engaged in sharing and reusing data, metadata, knowledge bases, and data visualization tools. In addition to traditional articles addressing methodologies and/or resources, the journal also welcomes “data articles” in the form of knowledge graphs, ontologies, and linked datasets.

Welcome to submit to *Data Intelligence*.

Training plan for 4.3 Perspectives around open science

Objectives:

1. To articulate the importance of open science and research data management for the modern scientific practice
2. To understand how the FAIR principles contribute to open science
3. To understand how the FAIRness of scientific contributions can be measured

Learning outcomes:

1. Being able to interpret the FAIR principles in a research context
2. Understand the basics of a data management plan and apply them to a research project

Materials:

- FAIR guiding principles paper: <https://www.nature.com/articles/sdata201618>
- GO-FAIR website: <https://www.go-fair.org/fair-principles/>
- Data Stewardship Wizard: <https://ds-wizard.org/>
- Application of FAIR in an enterprise context: <http://www.odbms.org/2019/10/on-and-fair-principles-qa-with-kees-van-bochove/>