

Fundamentals of scientific metadata - didactic course design and material for a hands-on training course on metadata

Tuesday 10 October 2023 14:30 (15 minutes)

In their endeavor to generate and share FAIR research data, scientist face various challenges. High-level recommendations such as the FAIR principles [^1] require prior knowledge and a set of technical skills which are typically not part of the academic education. Therefore, the successful implementation of FAIR research data guidelines stands in grave need for well-trained, data-literate and technically skilled scientific staff. As a result, the general demand for the implementation of the FAIR data principles, goes hand in hand with the demand for good educational resources that can help researchers meet those.

The HMC Community Survey 2021 [^2] revealed that more than 45 % of Helmholtz researchers have little to no prior knowledge on FAIR principles and metadata handling. However, their interest in training in this field was astoundingly high (91,7 %).

We therefore created a metadata training course covering the fundamental aspects of metadata annotation, targeted towards early-career researcher (PhD Students and Postdoctoral Researchers) from any scientific domain. The didactic concept encourages and motivates participants to start and sustainably adapt their (meta)data annotations through hands-on exercises focusing on familiar problems.

Our material is designed in a modular fashion to allow easy adaptation both to the audiences skill level or to different scientific domains.

The course was taught on 5 different occasions so far. The general interest in such training as well as the post-hoc evaluation among participants attests both high interest as well as high quality of our material.

[^1]: Wilkinson, M., Dumontier, M., Aalbersberg, I. et al. The FAIR Guiding Principles for scientific data management and stewardship. Sci Data 3, 160018 (2016). <https://doi.org/10.1038/sdata.2016.18>

[^2]: Arndt, W. , Gerlich, S. C. , Hofmann, V. , Kubin, M. , Kulla, L. , Lemster, C. , Mannix, O. , Rink, K. , Nolden, M. , Schweikert, J. , Shankar, S. , Söding, E. , Steinmeier, L. and Süß, W. and Helmholtz Metadata Collaboration (HMC) Working Group "Taskforce Survey" (2022) A survey on research data management practices among researchers in the Helmholtz Association. Open Access , ed. by Lorenz, S., Finke, A., Langenbach, C., Maier-Hein, K., Sandfeld, S. and Stotzka, R.. HMC Report, 1 . HMC-Office, GEOMAR Helmholtz Centre for Ocean Research, Kiel, Germany, 39 pp. DOI 10.3289/HMC_publ_05.

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Session Classification: Poster session

Track Classification: Poster session