

THE ODUM INSTITUTE

FOR RESEARCH IN SOCIAL SCIENCE

Odum Institute Data Archive DATA CURATION + VERIFICATION SERVICES

As concerns about the integrity of published scientific results continue to grow, journal editors are playing an important role in helping to increase the reproducibility of research by issuing policies that promote transparent research practices by requiring authors to make available the data underlying the findings presented in their articles. The Odum Institute Data Archive offers a range of data curation and verification services to scholarly journals to support implementation, compliance, and enforcement of such data policies.

SERVICES

Best practices for increasing research reproducibility suggest that journals adopt a minimum set of transparency standards, to be reflected in their data policies. According to the Transparency and Openness Promotion (TOP) Guidelines,¹ data policies should require authors to meet a certain level of data, analytic methods (i.e., code), and research materials transparency—whether it be that authors must indicate the availability status of the data, that authors are required to deposit the data in a repository, or that author-submitted data are verified for replicability. Depending on their implementation of this standard, journals may opt for one or more of the following Odum Institute Data Archive services:

Journal Data Repository

Journals may require that authors submit their data, code, and documentation associated with published findings to a trusted repository. The Odum Institute Data Archive hosts an instance of the Dataverse, which is a web application for publishing, sharing, and citing datasets. The Data Archive will establish and brand a dedicated Dataverse to which authors can submit their dataset materials. The Dataverse application automatically assigns a persistent identifier (DOI) and generates a standardized data citation to the dataset. This ensures that data are widely discoverable and accessible for verification and reuse.

Data Curation

While making data publicly available is essential to research transparency and reproducibility, the data must also uphold the FAIR Data Principles,² which helps to ensure that the data are Findable, Accessible, Interoperable, and Re-usable. The Odum Institute Data Archive is equipped with the repository infrastructure and staff expertise to make data FAIR by applying data curation workflows to author-submitted data materials. Data curation services include the following tasks:

- Review materials for completeness
- Identify confidentiality risks

¹ Center for Open Science. (2015). TOP Guidelines. Retrieved from <https://cos.io/our-services/top-guidelines/>

² Force11. (2016). THE FAIR DATA PRINCIPLES. Retrieved from <https://www.force11.org/group/fairgroup/fairprinciples>

- Identify incomplete, inconsistent, or missing variable and value labels
- Assess file formats for suitability for long-term preservation
- Enhance descriptive metadata
- Link data to published article

Data Verification

For the most stringent of data policies that require verification of author-submitted data to ensure they can be used by a third party to reproduce findings in the published article, the Odum Institute Data Archive works with Odum Institute statisticians to perform the following data verification tasks to support these policies:

- Review code for inclusion of commands and comments required for proper execution
- Execute code
- Compare outputs to tables and figures in the manuscript

WORKFLOWS

Odum Institute Data Archive staff work closely with the journal editor to establish a workflow that integrates manuscript publication and data curation + verification processes as seamlessly as possible. The Odum Institute Data Archive recognizes that manuscript systems and peer review procedures vary among journals; Data Archive staff are prepared to adapt its current workflows to accommodate the specific needs of the journal.

Figure 1 below is a high-level illustration that represents the integration of the manuscript publication and data curation + verification workflow for a journal that requires authors to submit data, code, and documentation for independent review and subsequent publication as a condition of final article acceptance.

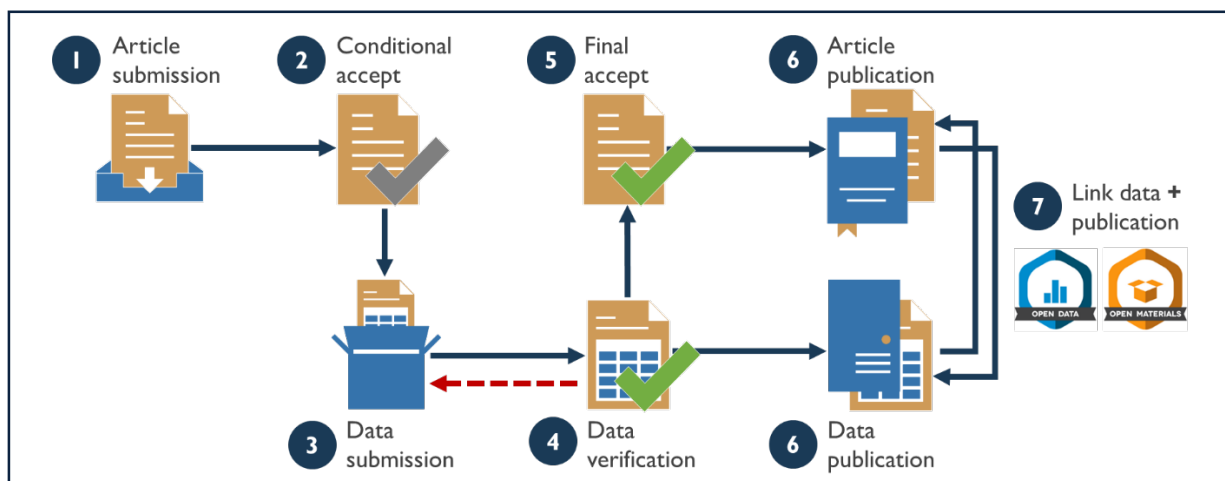


Figure 1. Data curation and verification workflow.

For more information about the Odum Institute Data Archive Data Curation + Verification Services, contact odumarchive@unc.edu.