

FABBS Open Science Statement

The Federation of Associations in Behavioral and Brain Sciences (FABBS) is a coalition of 29 scientific societies and 60 academic departments that come together to advance the rigor, impact, equity, and accessibility of our disciplines. To these ends, FABBS champions the principles and practices of open science.

As a coalition, FABBS has an opportunity to foster discipline-specific norms and good practices. FABBS is pleased to provide the following guidance on a range of open science-related activities. We hope that this statement will serve as a tool to calibrate language and further the conversation. Accordingly, FABBS has created and will continue to grow the FABBS [Open Science Hub](#).

These efforts reflect our commitment to increasing the rigor and reliability of our sciences. The Government Accountability Organization (GAO) defines rigor as the ‘soundness and precision of study design, execution, data collection, and analysis.’ In addition to using replication as a tool to validate findings, FABBS members work to strengthen training and methodology, evaluate and facilitate larger studies, and increase collaboration to validate research models.

Recognizing the foundational importance of a common vocabulary, FABBS appreciated the opportunity to have sponsored [Accelerating Behavioral Science through Ontology Development and Use](#), a report by the National Academies of Science. FABBS continues to support efforts to more clearly specify a shared conceptualization for using precise, agreed upon terms and relationships to represent our disciplines.

FABBS strongly encourages researchers in the sciences of mind, brain, and behavior to undertake the open science activities enumerated below to foster innovation and collaboration in our community. Ideally, these outputs will be shared under licenses that encourage reuse with attribution (e.g., Creative Commons Attribution/CC BY). These practices, individually and collectively, foster replication, reproducibility, and transparency.

Training and Support

Developing and sustaining an open science ecosystem requires skills, time, and funding. FABBS commits to serving as a conduit for disseminating training resources, good practices, lessons learned, and other materials useful to member societies and

the broader behavioral and brain sciences community. This commitment includes, but is not limited to, participating in the [Alliance for Open Scholarship](#), a coalition of professional societies collaborating to identify, articulate, and socialize appropriate open scholarship norms within their disciplines. FABBS also contributed to the [WeShareData](#) Data Sharing Series for Societies and hosts [relevant webinars](#).

Rewards and Incentives

FABBS recognizes the importance of properly incentivizing and rewarding open science activities. For example, the [University of Maryland psychology department](#) is leading the way to revisit tenure review and promotion to better align with department and scientific society values. FABBS encourages behavioral and brain sciences departments to formally embed open science considerations in hiring, review, tenure, and promotion processes.

The [National Academies of Sciences, Engineering, and Medicine \(NASEM\) Roundtable on Aligning Incentives for Open Science](#) offers sample language for job postings, applications, external letter requests, and annual reporting to (a) signal the department's commitment to open science; and (b) begin a dialog with current and prospective members about their open science activities. Note that the NASEM-developed tool also includes a rubric to help departments evaluate the absolute and relative merits of responses.

Research Activities

Preregistration

FABBS encourages pre-registration for hypothesis-driven research. Undocumented deviation in data analysis has the potential to weaken scientific inference: Results that are statistically fragile can appear to be robust if not all of the analytic choices are disclosed. By submitting a detailed study protocol and statistical analysis plan to a registry prior to conducting the work (i.e., preregistering with an analysis plan), the scientist can distinguish between planned hypothesis testing (i.e., confirmatory tests) and unplanned discovery research (i.e., screening or exploratory research).

Preregistration is particularly important for studies that make an inferential claim from a sampled group or population. Exploratory research is characterized by iterative processes and descriptions of patterns and provisional estimates of parameters poorly suited for preregistration.

Preprints

Preprints best practices are still evolving. At the same time, FABBS is concerned about the risks of disseminating science that has not fully benefited from the peer review process and understands the complexity of retracting that information. FABBS encourages researchers to consider depositing submitted manuscripts, and subsequent versions, on a publicly accessible preprint server (e.g., PsyArXiv). FABBS recognizes the considerable value of preprints to allow researchers to receive community input and disseminate valuable science more quickly and broadly.

Article Sharing

FABBS encourages researchers to share peer-reviewed research articles immediately upon publication, either by self-archiving copies of papers in a trusted open repository (e.g., PubMed Central, COS) or by publishing through open access journals.

The [Transparency and Openness Promotion Guidelines](#) (TOPS) established eight modular standards, each with three levels of strictness. The components can be tallied and combined into a factor to compare and contrast openness of individual journals or across disciplines. These practices, individually and collectively, foster rigor and transparency.

Protocol Sharing

FABBS encourages our members to share original research questions, including assumptions, along with the final study and analysis. Protocols describe the steps and decisions/compromises that were made in the process of scientific discovery and provide the context to interpret and understand the derivation of research results. Detailed descriptions of the methods, equipment, and special techniques used in experiments can be shared through a protocol sharing service, such as protocols.io.

Code & Software Sharing

Research data, especially in certain specialized fields, are often collected and stored in proprietary file formats that require software with costly licenses to open and analyze. In these conditions, other researchers require accompanying code, algorithms, and software to open and analyze the files. This creates a financial barrier to access that will delay or prohibit reuse of data, especially for underserved populations, citizen scientists, and early career researchers with fewer resources. It might also present technical barriers that could limit the machine readability and reusability of data by assistive devices. Sharing code and software at the time of publication maximizes opportunities for colleagues to replicate analyses

underpinning research. Code and software that is of interest to the community but not linked to a specific publication should also be shared in a similar manner. Similar to code and data, expanding access to research materials can accelerate research more broadly, promote the independent confirmation of results, and allow comparisons across research projects or products.

Data Sharing

The independent confirmation of results and conclusions is critical for understanding scientific soundness and informing future research activities. Openly shared data can shed light on negative results and attempted research directions, with the potential to improve efficiency of the research process as well as lead to novel analyses and conclusions. FABBS encourages the sharing of any data that are needed for independent verification of research results via a trusted discipline-specific repository ([Brainlife](#), [OpenNeuro](#), see [FABBS list of discipline specific repositories](#)) or generalist repository (e.g. Dryad, Figshare, Open Science Framework, or Zenodo). FABBS also encourages researchers to abide by the [FAIR Principles](#), which outline Findable, Accessible, Interoperable, and Reusable practices. Ideally, data will be shared no later than publication.

Digital Media

Digital scholarship encompasses a range of research outputs that may fall outside the traditional research dissemination workflow. Examples include digital written media (e.g., magazine articles, op-eds), audio content (e.g., podcasts), and graphic material (e.g., photos, infographics). These materials expand participation in, engagement with, and understanding of scientific activities. Where possible, FABBS encourages researchers to archive digital media in a repository that facilitates discovery and preservation with persistent identifiers (e.g., Figshare, Zenodo).

FABBS Role in a Federal Policy Context

FABBS actively solicits feedback and input from our societies and individual members to better understand the skills necessary and the costs associated with open science practices, such as the time and effort required to properly prepare research outputs for maximal access and reuse. We commit to continuing to work with the emerging cross-sector coalition of governmental agencies, private philanthropies, colleges and universities, professional societies, and others to ensure that the transition to open science is equitable and transparent.

Open science policies and practices are dynamic and rapidly changing with numerous opportunities for input and engagement. This is a living document that FABBS will update to best reflect evolving practices and resources.

FABBS acknowledges that this guidance has been informed significantly and graciously by a number of open scholarship experts, initiatives, articles, and reports including but not limited to:

- [Roundtable on Aligning Incentives for Open Scholarship](#), NASEM
- [Alliance for Open Scholarship \(All4OS\)](#)
- [*Open Science in Health Psychology and Behavioral Medicine: A Statement From the Behavioral Medicine Research Council*](#)
- [Center for Open Science \(COS\)](#)
- [*Research Reliability: Federal Actions Needed to Promote Stronger Research Practice*](#), Government Accountability Office (GAO-22-104411)