

Scientific Integrity

NIST O 5101.00

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PURPOSE

This directive describes the requirements and responsibilities for the NIST Scientific Integrity Policy. It describes NIST-wide principles to guide and ensure the integrity of the scientific process at the Institute, to ensure the integrity of scientific information, and to engender public trust in NIST's efforts to advance measurement science, standards, and technology.

APPLICABILITY

All NIST Federal Employees and Associates engaged in scientific activities at or for NIST.

REFERENCES

- [Executive Order 13526 - Classified National Security Information](#)
- [Presidential Memo on Scientific Integrity](#)
- Department of Commerce
 - DoC Memo on Scientific Integrity– March 30, 2012
 - [DAO 219-1, Public Communications](#)
 - [DAO 218-1, Legislative Activities](#)
 - [DAO 218-2, Legislative and Intergovernmental Affairs](#)
 - [DAO 218-3, Reports to Congress Required by Law](#)
 - [DAO 219-4, Publications and Audiovisuals Control System](#)
- [Information Quality Act \(Pub. L. 106-554\)](#)
- [NIST P 5100.00 Scientific Integrity](#)
- [NIST O 1801.00 Review of Fundamental Research Communications](#)
- [NIST Administrative Manual Subchapter 3.02 Procedures for Approval of NIST Memberships and Staff Participation in Professional Organizations](#)
- [National Institute Of Standards and Technology Guidelines, Information Quality Standards, and Administrative Mechanism](#)

DEFINITIONS

Scientific integrity - an attribute of institutional and personal behavior in the practice or management of scientific research and of its products, that is free from personal, political or social allegiances, beliefs or interests that are inessential for the practice of science.

The following are taken into account in considering scientific integrity:

- Types of interference include, but are not limited to, political convictions, religious beliefs and economic motivations.
- Belief in a scientific theory, based on scientific practice and consistent with empirical evidence, may legitimately constrain scientific practice, provided it does not prevent empirically testing the validity of the very theory that is the object of such belief.
- NIST's economic motivations may legitimately be used to establish priorities for scientific research, provided they are consistent with NIST's mission and are not otherwise used to suppress scientific findings that may have economic impact deemed adverse to individual, corporate or other interests.
- The practice and management of scientific research and of its products may legitimately be constrained by contractual obligations freely entered upon prior to the conduct of such research, by the institutions and individuals practicing or managing such research.
- Constraints mentioned above include, but are not limited to, those that are part of the terms of employment in the civil service in general, and at NIST in particular, and the technical programs in science, technology, and standards that the U.S. Congress, the U.S. Department of Commerce and NIST management determine should be pursued in the execution of NIST's mission.
- The distortion, alteration, concealment, censorship, or suppression of valid products of *bona fide* scientific research, or the placement of restrictions on the dissemination of such products, by NIST management or by individual NIST scientists, violates scientific integrity, except for those restrictions on dissemination contemplated in the preceding bullets.
- Scientific research is the process of developing scientific knowledge. "Science" and "scientific knowledge" are objects of the philosophy of science. For relevant definitions and discussion, refer to: Philosophy of Science, in, R. Audi (ed.), The Cambridge Dictionary of Philosophy, 2nd Ed., pages 700–704, Cambridge University Press, Cambridge, UK, 1999; C. Hempel, Philosophy of Natural Science, Prentice Hall, Upper Saddle River, NJ, 1966.

PRINCIPLES AND REQUIREMENTS

Integrity is a core value at NIST, and is essential for performing the NIST mission at the highest level. As a result, NIST management and staff must be committed to performing NIST scientific activities with the following considerations:

Scientific Research Excellence:

- NIST scientific work is to be carried out by its scientists, engineers and technical experts with a commitment to intellectual honesty, objectivity, clarity, openness, reproducibility and personal responsibility for one's actions.
- The discussion, presentation and publication of research results shall be subject to the level of peer review required to ensure the quality of such results.
- Management must provide leadership to create an environment that supports the highest levels of research excellence.
- NIST will ensure that those who raise or report concerns about the integrity of NIST scientific work are not subjected to retribution.

Conflict and Bias:

- Scientific work should not be interfered with or biased by commercial, financial, social, religious, political or cultural concerns that are external to the scientific process.
- Individual and organizational conflicts of interest must be actively managed.

Freedom to Disseminate:

- There should be no non-scientific interference in reporting the products of scientific work, except where such publication or distribution is prohibited by law or to protect privacy, proprietary information, or national security as defined in Executive Order 13526.
- NIST actively supports the wide dissemination of scientific work such as publications in open scientific literature, technical staff participation in various scientific venues and events, and unfettered communication between NIST technical staff and the media or general public to communicate scientific results consistent with Department of Commerce policies.
- Measurement results and other data supporting published research results and the development of technology and standards will be made publicly available and will be sufficiently documented to facilitate the reproducibility of the research.

Professional Development:

- NIST contributes to scientific integrity broadly by encouraging its scientists and engineers to provide technical advice through activities such as peer review of journal articles and participation on editorial boards, technical review panels and scientific advisory bodies.

- NIST supports full participation in professional or scholarly societies, committees, task forces and other specialized bodies of professional societies, including serving as officers or on governing boards of such societies with proper legal review and approval as per NIST Administrative Manual Subchapter 3.02.
- NIST recognizes the importance of scientific leadership, growth and recognition as critical components to create a culture that promotes scientific integrity and advances the NIST mission.

RESPONSIBILITIES

NIST Director

- Sets NIST scientific integrity policy.

NIST Associate Director for Laboratory Programs

- Authorized by the Director to determine how the NIST scientific integrity policy is implemented to meet expectations and create the desired environment.
- Ensures the implementation of notices, orders, procedures and guidance related to scientific integrity in the Directive Management System.
- Monitors the institutional environment to maintain and improve the culture of scientific integrity.
- Administers processes and procedures that promote and protect scientific integrity.

OU Directors

- Ensure implementation of, compliance with and accountability for the aspects of the NIST scientific integrity policy for which they are responsible in accordance with procedures issued under this order.
- Provide leadership in support of responsible scientific conduct.

NIST Federal Employees and Associates

- Protect the integrity of the scientific research performed at NIST by adhering to the procedures and principles related to scientific integrity in the Directives Management System.

DIRECTIVE OWNER

600 - Associate Director for Laboratory Programs

APPENDICES

Appendix A: Revision History

APPENDIX A

REVISION HISTORY

| Revision | Date | Responsible Person | Description of Change |
|---------------|------------|------------------------|---|
| Initial Draft | 8/14/2012 | Richard Cavanagh (SPO) | First Draft |
| Rev. .01 | 12/7/2012 | Dan Cipra | Incorporated changes and moved Appendix A to the references section |
| Rev .02 | 12/18/2012 | Dan Cipra | Incorporated OCC comments. |
| Rev. .03 | 1/4/2013 | Richard Cavanagh | Incorporated DRB comments |
| Rev. 1.01 | 4/11/2017 | Dan Cipra | Updated version |