



Scientific Misconduct

Scientific misconduct is defined as "the violation of the standard codes of scholarly conduct and ethical behavior in professional scientific research".

To determine scientific misconduct the code of scholarly conduct would have to be defined. The code of scholarly conduct is written by each institution to reflect their values but always contains certain universal ideas:

- The treatment of human subjects [1].
- Honesty
- Maintaining integrity of all experiments [2] and research [3]
- Publishing the research and results [4]
- Granting access to others to allow reproduction [5] of the testing
- Personal responsibility for the research
- Acknowledging [6] others contributions

This is a partial list of the most important factors that are considered to be a typical code for scholarly conduct and ethical behavior in professional scientific research [3].

These codes are in place to minimize false reporting and unethical [7] behavior in experimentation.



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What Can Be Considered Cases of Scientific Misconduct?

When it comes to scientific misconduct it has to be intentional and willful. The term is not thrown around lightly.

There are several cases of scientific misconduct that has hit the media since the 1980's that has shed some light on the reality of the situation, but to say that scientific misconduct has only really been around since the 1980's would be false. It is estimated that some of the greatest minds in science have either fabricated results, or skewed data to support their theories.

Take a look at these examples:

- *"Isaac Newton may have adjusted calculations to fit observations."*
- *"Gregor Mendel's results with pea plants^[8] were cleaner than what is observed experimentally, indicating that he might have changed the data."*
- *"Robert Millikan, in a research paper describing the charge of an electron, failed to mention that he eliminated some data points."*

Citations:

Columbia University ^[9]

If these folks would have published today their research may have been pulled and they would have lost all credibility. Scientific misconduct can be considered the willful ignorance of data, evidence of falsifying, skewing of data or deliberate misrepresentation of data. Scientific misconduct can also be considered the misuse of human subjects (which there are strict guidelines in place that govern the use of).

In recent cases of scientific misconduct one name clearly stands out from the rest because it was so fraught with misconduct, not merely one instance but many.

Hwang Woo-Suk has many pages dedicated to him across the internet, if you type his name into any search engine there will be at least 10 pages of links listed.

Read below for his story:

Hwang Woo-suk was a professor of theriogenology and biotechnology at Seoul National University (dismissed on March 20, 2006) who became infamous for fabricating a series of experiments, which appeared in high profile journals, in the field of stem cell research.

Until November 2005, he was considered one of the pioneering experts in the field of stem cell research, best known for two articles published in the journal Science in 2004 and 2005 where he fraudulently reported to have succeeded in creating human embryonic stem cells by cloning. Both papers were later editorially retracted after they were found to contain a large amount of fabricated data. He has admitted to various charges of fraud. On May 12, 2006 Hwang was "indicted on embezzlement and bioethics law violations linked to faked stem cell research."

Cited from the article about the scientific misconduct of Hwang Woo-Suk ^[10] on Wikipedia.

What motivated this brilliant scientist to commit scientific misconduct so flagrantly? It would seem the short answer is MONEY!

Of course not every case of scientific misconduct is reported as widely, it is a fair estimation to say that for every once case that is reported there may be as many as ten cases that go unreported. Punishment for scientific misconduct can range depending on the severity of the misconduct.

Take a peek at these headlines:

- *"MIT Fires Professor Van Parijs for Using Fake Data in Papers"* as reported in The Tech
- *"Panel Says Bell Labs Scientist Faked Discoveries in Physics"* - NY Times reporting about Dr. J. Hendrik Schön

In recent years the incidence of reporting has increased, this may or may not influenced punishment. In some cases there are criminal charges brought about, but in most cases the article is retracted by the editor and there is some other punishment prescribed that may result in the scientist losing credentials and being banned from participating in research.

In more serious cases there may be jail involved.

What to Do If Scientific Misconduct is Suspected?

At some point in a research setting one may come upon research or an article or data that may seem as if it is part of some type of scientific misconduct.

All the necessary information should be gathered before being presented to the correct authorities affiliated with the research. This is a serious charge and should not be taken lightly. If the investigation proves inconclusive, then the benefit of the doubt should be the order of business.

A formal retraction of the scientific article can be sufficient in putting any misconduct to rest if an error in reporting is pointed out and proven. However, retracting an article does not necessarily mean that it will not be cited in other works.

Scientific misconduct can ruin the reputation of a scientist and nullify any research that has been done with his/her name attached to it, even if there is no question regarding the validity ^[11] of that research.

Source URL: <https://explorable.com/scientific-misconduct>

Links:

[1] <https://explorable.com/social-science-subjects>, [2] <https://explorable.com/conducting-an-experiment>, [3] <https://explorable.com/what-is-research>, [4] <https://explorable.com/writing-a-results-section>, [5] <https://explorable.com/reproducibility>, [6] <https://explorable.com/writing-acknowledgements>, [7] <https://explorable.com/ethics-in-research>, [8] <https://explorable.com/law-of-segregation>, [9] http://ccnmtl.columbia.edu/projects/rcr/rcr_misconduct/foundation/index#1_B_1, [10]

http://en.wikipedia.org/wiki/Hwang_Woo-Suk, [11] <https://explorable.com/types-of-validity>, [12]
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