

Scientific Ethics

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Scientific misconduct has a complicated history with a number of well-known cases. They occurred mainly in the biological sciences, although two cases in physics did come up recently. Science has a reward system and an authority structure that between them maintain order and discipline in the subject. The roots of all this go back to the very beginnings of modern science. In the final analysis, fraud in science consists of fabrication, falsification and plagiarism. Nothing else really counts.

Dr. David L. Goodstein, Ph.D., is professor emeritus of physics and applied physics at the California Institute of Technology, where he worked for over 40 years. From 1988 to 2007, he was also Vice-Provost of Caltech. His research concentrates on experimental condensed matter physics, a discipline that *Physics Today* deems was started with the publication of his book, *States of Matter* in 1975. Dr. Goodstein dealt with cases of scientific misconduct as Vice-Provost and developed a course on Scientific Ethics with philosopher Dr. James F. Woodward that they taught annually for ten years. It is still taught annually at Caltech. Dr. Goodstein's extensive knowledge in research ethics convinced him to write *On Fact and Fraud: Cautionary Tales from the Front Lines of Science* (2010). He is also the author of the best-selling book *Out of Gas: The End of the Age of Oil* (2004).