Review ofEthics in Science and EngineeringEthics in Science and Engineering by James G.Speight and RussellFoote. Scrivener-Wiley Publishing : New York , 2011 . 306 pp. ISBN: 978-04...

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1 AUTHOR:

David Pursell

Georgia Gwinnett College

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Review of *Ethics in Science and Engineering*

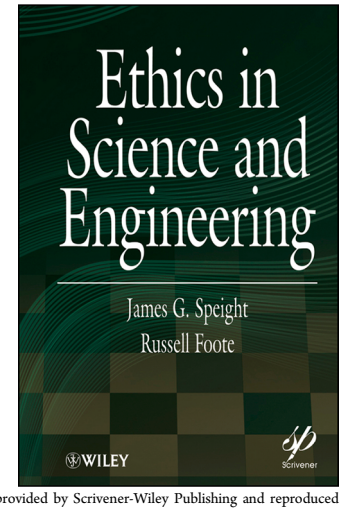
David P. Pursell*

School of Science and Technology, Georgia Gwinnett College, Lawrenceville, Georgia 30043, United States

Ethics in Science and Engineering by James G.Speight and RussellFoote. Scrivener-Wiley Publishing: New York, 2011. pp. ISBN: 978-0470626023 (hardcover). $95.

The topic of Speight and Russell's book is timeless, as ethics in science and engineering is in a sense a subculture of ethics in the human experience. While ethics may vary from one culture to another, from one time period to another, a goal of the science and engineering subculture is universal ethical practices. In the modern era of globalism, this goal of universal ethics is essential as the practice of science and engineering has wide-ranging impacts on the safety, quality of life, well being, and advancement of mankind.

The topic of ethics in science and engineering is addressed in many forums. Professional societies, such as the American Chemical Society[1] (ACS), maintain policies, committees, and professional training plans dealing with ethics. Periodicals such as *Chemical and Engineering News* often publish reports, features, and opinions on ethics, such as Robert H. Hill Jr.'s "Creating Safety Cultures in Academic Institutions" in which he writes "teaching safety is an ethical responsibility."[2] The Committee on Science, Engineering, and Public Policy of the National Academy of Sciences (NAS), National Academy of Engineering, and Institute of Medicine have published a regularly updated (1989, 1995, 2009) ethical guide, *On Being a Scientist: A Guide to Responsible Conduct in Research*,[3] in which the preface states that "the scientific enterprise is built on a foundation of trust. Society trusts that scientific research results are an honest and accurate reflection of a researcher's work." Ethical issues are so pervasive in society that the NAS regularly releases publications such as *Ethical and Scientific Issues in Studying the Safety of Approved Drugs*.[4] There is no doubt that with a large, worldwide scientific and engineering enterprise, ethical practice is a topic of ongoing and critical importance.



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So what does *Ethics in Science and Engineering* by Speight and Foote add to the rather robust publication collection on professional ethics that others do not? This question is best answered by first mentioning the background of the authors. James G. Speight is a professional chemist with 40 years of work in the petroleum industry, where he has published in the area of petroleum science and engineering as well as environmental protection. He writes from the perspective of the practicing professional scientist and engineer. Russell Foote is a social scientist who has published in the fields of ethics in culture, science, and education. As a writing team, they bring wide-ranging perspective to the topic of ethics in science and engineering.

Ethics in Science and Engineering is organized in eight chapters: Explaining Ethics; Scientists and Engineers; The Psychology and Philosophy of Ethics; Education of Scientists and Engineers; Scientific and Engineering Societies; Codes of Ethics and Ethical Standards; Integrity in Research; Publication and Communication; and Enforcement of Codes of Ethics. Each of the chapters presents relevant theoretical background of the ethical principles as well as practical examples and case studies for the particular chapter topic. The end of each chapter contains a robust listing of references from a diverse array of authors and publications ranging from professional bodies including NAS, the American Association for the Advancement of Science, and the ACS; journals such as *Journal of Higher Education*, *Journal of Business Ethics*, *Ethical Issues in Social Science Research*; as well as the popular press such as *Chemical and Engineering News*, the *New York Times*, the *Wall Street Journal*, and *Newsweek*. This comprehensive reference list is perhaps the most valuable aspect of the book as there are close to 300 references provided, many of which are not typically perused by practicing scientists and engineers. The reference list serves as a great starting point for a more detailed literature search for the reader's particular points of interest with regard to ethics, both theoretical and applied. The book closes with a glossary of terms and definitions and an index. There is no doubt that science and engineering ethics requires continued emphasis and reinforcement—not only as new generations join the profession, but also to keep ethics at the forefront for the already practicing professional. *Ethics in Science and Engineering* is successful in maintaining this visibility on ethics for all scientists and engineers.

Although not significantly detracting from the overall value of the book, I note several shortcomings. The authors write in the preface on pp ix–x:

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> *There is no attempt to be judgmental but to encourage everyone to reflect on themselves philosophically (that is, in terms of individual values and beliefs) since it was absolutely clear that personal motivations and preferences can override any other contributory factor.*

The authors do not meet this nonjudgmental approach and in several instances are quite judgmental. For example, in the discussion of "Climate Scientist Steps Down" on pp 285−286, the authors include parenthetical comments in a rather mocking tone. Specifically they write:

> *As an aside and a point that seems to be forgotten (or ignored) in all of the climate-related debates and publications is that the earth is resilient to changes and also is currently in an inter-glacial period. As a result (surprise, surprise!) the temperature of the earth will increase. The actual extent of the temperature rise is unknown (who was around to measure the temperature increase during the last inter-glacial period?) but and will contribute to the overall temperature rise.*

There are several other instances of such parenthetical, judgmental comments throughout the text.

The glossary at the end of the book is marginal, as the definitions provided are brief to the point of not being useful, even though the glossary term is often more fully defined elsewhere in the text. Perhaps a page reference to the text for each definition in the glossary would be helpful. As an example of interest to readers of the *Journal of Chemical Education*, "academic freedom" is defined in the index on p 291 as: "The liberty or privilege that academics enjoy in regard to teaching, research and publications." This short definition does not include the "what and why" of academic freedom and does not provide a contextual meaning of the term, but rather just describes academic freedom as "freedom". At several points in the text, the authors do attempt to define academic freedom, but might have served readers better by using a variation of academic freedom as defined by the American Association of Colleges and Universities,[5] the American Association of University Professors,[6] University and College Union[7] of the United Kingdom, or similar international organizations.

Another shortcoming of the book is that it requires more detailed editing. Several passages are repeated word-for-word in multiple sections. For example, the second paragraph on p 29 concerning individual goals of academic-degree seekers is virtually the same, word-for-word, as the first paragraph of p 32 concerning appropriateness of academic degrees. Again, two full paragraphs on p 163 dealing with experimental design are repeated essentially word-for-word on p 202. Other examples of such repetition could have been edited to result in a more readable, less redundant text. Finally, the text has minor editing problems such as typographical errors and incomplete sentences. Overall, Speight and Foote present a wide-ranging discussion of ethics from a theoretical and applied perspective making *Ethics in Science and Engineering* a valuable reference book.

AUTHOR INFORMATION

Corresponding Author

*E-mail: dpursell@ggc.edu.

Notes

The authors declare no competing financial interest.

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