# Science and Society

Some scientists and engineers are comfortable working in situations in which some secrecy is required, but others prefer not to do so. It is generally regarded as a matter of individual choice and ethics, not one of professional ethics.

When applications of research could pose risks to society, scientists' decisions to participate in that research are based on personal as well as professional ethnics.

Progress in science and invention depends heavily on what else is happening in society.

History often involves scientific and technological developments.

The strongly held traditions of science, including its commitment to peer review and publication, serve to keep the vast majority of scientists well within the bounds of ethical professional behaviour. Deliberate deceit is rare and likely to be exposed sooner or later by the scientific enterprise itself. When violations of these scientific ethical traditions are dis-covered, they are strongly condemned by the scientific comm.-unity, and the violators then have difficulty regaining the respect of other scientists.

Because science is a human activity, what is valued in society influences what is valued in science.
ⓘ *Science and decision making*
The Scientific Community

Where a scientists' own personal, institutional, or community interests are at stake, he or she may be as biased as others are.
ⓘ *Science and decision making*

One way science affects society is by stimulating and satisfying people's curiosity and enlarging or challenging their views of what the world is like.

Scientists can bring information, insights, and analytical skills to bear on matters of public concern. Acting in their areas of expertise, scientists can help people understand the likely causes of events and estimate their possible effects.

Scientists often cannot bring definitive answers to matters of public debate. There may be little reliable data available, or there may not yet be adequate theories to understand the phenomena involved, or the answer may involve the comparison of values that lie outside of science.
Scientific World View

Funding influences the direction of science by virtue of the decisions that are made on which research to support. Research funding comes from various federal government agencies, industry, and private foundations.
Scientific Community

Current ethics in science hold that research involving human subjects may be conducted only with the informed consent of the subjects, even if this constraint limits some kinds of potentially important research or influences the results.

Scientists' nationality, sex, ethnic origin, age, political convictions, and so on may incline them to look for or emphasize one or another kind of evidence or interpretation.
ⓘ *Science and decision making*

Science can sometimes be used to inform ethical decisions by identifying the likely consequences of particular actions, but science cannot be used by itself to establish that an action is moral or immoral.
Scientific World View

Accurate record-keeping openness, and replication are essential for maintaining an investigator's credibility with other scientists and society.
ⓘ *Work of Science*
The Scientific Community
Investigations

Science ethics demand that scientists must not knowingly subject co-workers, students, or community residents to health or property risks without their prior knowledge and consent.

Societies influence what aspects of technology are developed and how these are used. People control technology (as well as science) and are responsible for its effects.

Scientists' personal interests and viewpoints can influence the questions they investigate.
The Scientific Community

Until recently, women and racial minorities, because of restrictions on their education and employment opportunities, were essentially left out of much of the formal work of the science establishment; the remarkable few who overcame those obstacles were even then likely to have their work disregarded by the science establishment.
The Scientific Community

Some matters cannot be examined usefully in a scientific way. Among them are matters that by their nature cannot be tested against observations.

In research involving human subjects, the ethics of science require that potential subjects be fully informed about the risks and benefits associated with the research and of their right to refuse to participate. Because animals cannot make informed choices, special care must be taken in using them in scientific research.

Many social practices and products of technology are shaped by scientific knowledge.

A lot can be learned about plants and animals by observing them closely, but care must be taken to know the needs of living things and how to provide for them in the classroom.

***ethics in research*** ***society affects science*** ***science affects society***


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