



Research Ethics

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Webinar III – ES Series on Scientific Research

Research Ethics

① What are Research Ethics ?



② Why are they important ?



④ What misconducts should we avoid?



③ What values should we adopt?

Research Ethics



Research Ethics

Rules to distinguish between what is right and what is wrong in Research



Research Ethics



“One should treat others as one would like others to treat oneself”

In research, this translates to:

- Do not use some one else’s text without citation acknowledgment
- Do not remove an author from a paper if they contributed to it
- ...etc.

Research Ethics

- Research ethics share the same values with ethical norms you learn at home, school, house of worship, etc.
- Research ethics is simply “good citizenship” applied to research



Research Ethics

① What are Research Ethics ?



② Why are they important ?



④ What misconducts should we avoid?



③ What values should we adopt?

Why are Research Ethics Important

- Promote the aims of research: *knowledge, truth* and *avoidance of errors*
- Prohibits *fabricating, falsifying,* or *misrepresenting* research



Why are Research Ethics Important

- Promote the values that are essential to collaborative work:
 - authorship,
 - copyright policies,
 - data sharing policies, and
 - confidentiality in reviews,



Protect intellectual property interests while encouraging collaboration.

Why are Research Ethics Important

- Promote moral and social values
 - Fabricating data in a clinical trial may harm or even kill patients
 - Failing to abide by regulations in a biological experiment may jeopardize health and safety



Why are Research Ethics Important

A graduate student at a Washington university admitted he falsified and fabricated research data in four papers, three of which were published. He admitted he falsified and fabricated the data because of "a combination of lack of motivation, laziness and a lack of interest in the work .

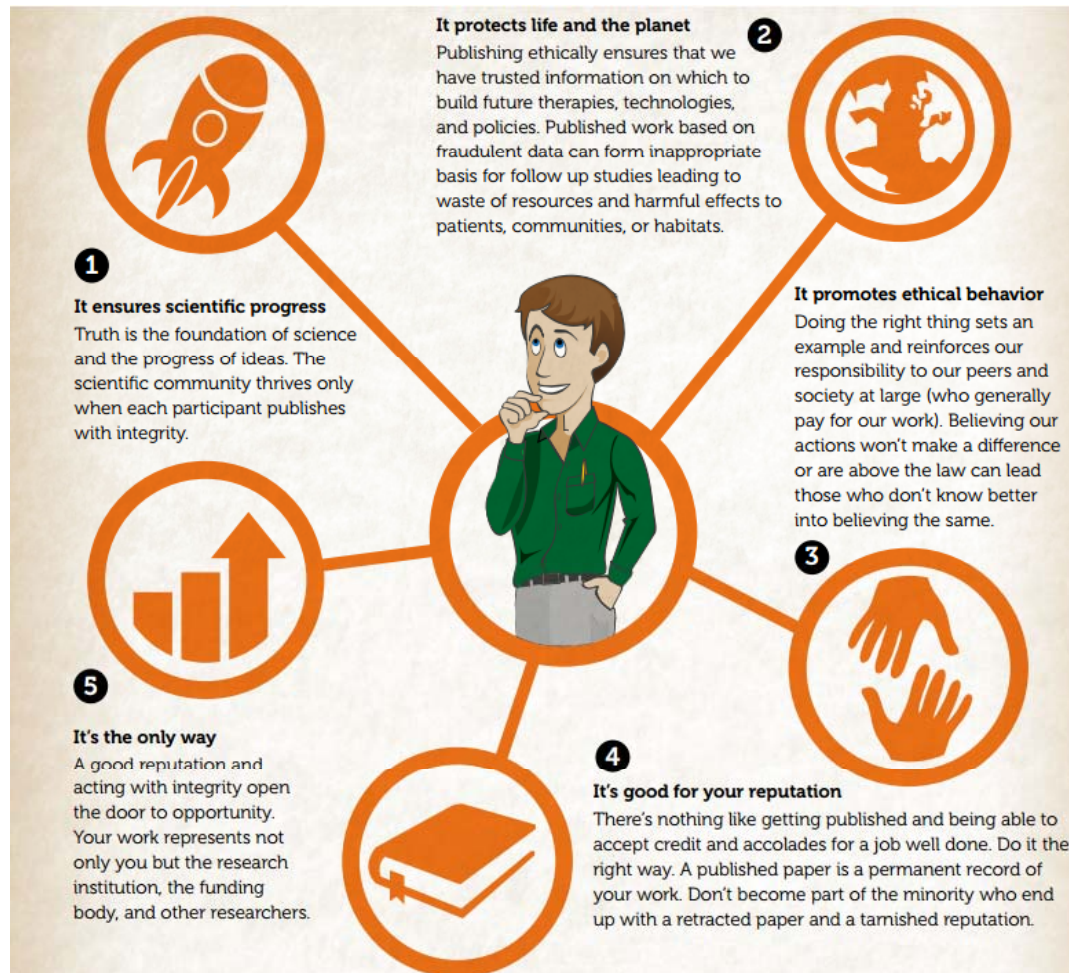
The student was:

- Dismissed from the university
- His master's degree was revoked
- The papers were retracted
- Debarred for 3 years by NSF

**A TRUE
STORY**



Top 5 Reasons to Follow Research Ethics



Source: <http://www.elsevier.com/ethics/>

Research Ethics

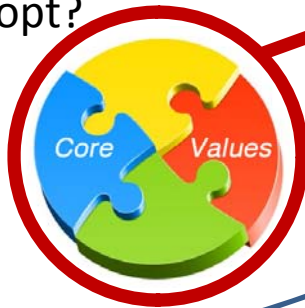
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Basic Values of Research Ethics

Honesty

- Honestly report data, results, methods and procedures
- Do not fabricate, falsify, or misrepresent data.



Basic Values of Research Ethics

Objectivity

Avoid bias in experimental design, data analysis, data interpretation, peer review, personnel decisions, and other aspects of research where objectivity is expected or required



People devote entire careers based on scientific findings. If you're not going to be truthful in what you report, you've not only wasted people's time, you've wasted their lives.

– Librarian, USA



Basic Values of Research Ethics

Carefulness

- Avoid careless errors and negligence
- Carefully examine your own work and the work of your peers.
- Keep good records of research activities, such as data collection, and research design



“ Without absolutely rigorous data and complete accuracy scientific inquiry cannot advance.
– Laurie Calhoun, Librarian, USA

Basic Values of Research Ethics

Respect for Intellectual Property

- Honor patents and copyrights
- Do not use unpublished data or methods without permission.
- Give credit where credit is due.
- Give proper acknowledgement for all contributions to research.
- Never plagiarize.



No Copying

Basic Values of Research Ethics

Responsible Publication

- Publish in order to advance research and scholarship, not to advance *just* your own career.
- Avoid wasteful and duplicative publication.



Research Ethics

① What are Research Ethics ?



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Main Sources of Misconduct in Research

- Plagiarism
- Duplicate Submissions
- Authorship
- Research Fraud
- Working with Human/Animal Subjects

Plagiarism

- When one author deliberately uses another's work without permission, credit, or acknowledgment.



Quiz

You are preparing a paper that involves a complex concept but you're having difficulty putting into words precisely how this concept works. You see an excellent explanation in another published paper. Is it okay to use this explanation word for word in your paper without referring to the other paper?

- Yes
- No



Source: <http://www.elsevier.com/ethics/>

Quiz

You are preparing a paper that involves a complex concept but you're having difficulty putting into words precisely how this concept works. You see an excellent explanation in another published paper. Is it okay to use this explanation word for word in your paper without referring to the other paper?

- Yes
- No

If you use another source to explain a concept, you should reference where that explanation came from and also make clear that you are quoting someone else. Using someone else's work as your own, is plagiarism.



Source: <http://www.elsevier.com/ethics/>

Quiz

Let's say you don't copy someone's original work word for word - instead you paraphrase it. Is it acceptable to use someone else's concept, idea, or description of an idea - but in your own words?

- Yes
- No



Source: <http://www.elsevier.com/ethics/>

Quiz

Let's say you don't copy someone's original work word for word - instead you paraphrase it. Is it acceptable to use someone else's concept, idea, or description of an idea - but in your own words?

- Yes
- No

The correct answer is Yes and No!

Paraphrasing is acceptable but is only permitted if you credit the other's work. Without such credit paraphrasing can constitute a form of plagiarism.



Source: <http://www.elsevier.com/ethics/>

Plagiarism - Literal Copying

Reproducing a work word for word, in whole or in part, without permission and acknowledgment of the original source.



Literal copying is only acceptable if you reference the source and put quotation marks around the copied text.

Plagiarism - Paraphrasing

Reproducing someone else's ideas while not copying word for word, without permission and acknowledgment of the original source.

Paraphrasing is only acceptable if you properly reference the source and make sure that you do not change the meaning of what the source intended.



Quiz

You plagiarized someone's work and you're caught, what's the likely consequence? Select ALL that apply.

- The article is retracted with public documentation explaining why
- The institute takes disciplinary action--and could ask you to leave
- Your judgment and reputation come into question



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- The article is retracted with public documentation explaining why
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All of the above

The severity will depend on the specific circumstances. If you're not clear on the boundaries of publishing ethics, seek the help of someone else at your institution.



Plagiarism – A True Story

Dr. [REDACTED], Assistant Professor, University of Pittsburg, engaged in research misconduct by plagiarizing text from two publications and including significant portions of that plagiarized text in two grant applications.

- Lost his job at the University of Pittsburg
- Banned from getting funds from any government agency

**A TRUE
STORY**



No Copying

<http://ori.hhs.gov/blog/ori-closes-2011-four-cases-involving-plagiarism>

Duplicate Submission

- Authors have an obligation to make sure their paper is based on original—never before published—research.
- Intentionally submitting or re-submitting work for duplicate publication is considered a breach of publishing ethics



Duplicate Submission – Text Recycling

Reproducing portions of an author's own work in a paper, and resubmitting it for publication as an entirely new paper



Literal copying is only acceptable if you reference the source and put quotation marks around the copied text.



Quiz

You have completed a paper and want to give it your best shot at publication. What's your best strategy:

- Submit your paper to several journals at the same time, and see who accepts it - maybe all three!
- Submit it to all at the same time, but once you find out one of the journals has accepted the paper, withdraw all other submissions.
- Submit your paper to one journal, and wait to hear if it is accepted. If it isn't, then submit it to another journal.



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- Submit your paper to one journal, and wait to hear if it is accepted. If it isn't, then submit it to another journal.

Authors should only submit to one venue at a time and wait to hear a decision before submitting to another venue . Submitting a paper to multiple venue simultaneously presents potential ethical issues because several venue may unknowingly publish the same paper-risking duplication. Multiple submissions also waste referees' time.



Source: <http://www.elsevier.com/ethics/>

Simultaneous Submission

Submitting a paper to two or more venues at the same time

Submission is not permitted as long as a Paper is under review with another venue



Quiz

Let's say an international journal accepts your paper for publication. Is it always okay to submit a version of that paper in a Arabic to a local journal or does that count as duplicate submission?

- Yes, it's okay. It does not count as duplicate submission.
- No, it's not okay. It counts as duplicate submission.



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Quiz

Let's say an international journal accepts your paper for publication. Is it always okay to submit a version of that paper in Arabic to a local journal or does that count as duplicate submission?

- Yes, it's okay. It does not count as duplicate submission.
- No, it's not okay. It counts as duplicate submission.

Submitting a paper to a journal or journals in different languages without acknowledgment of the original paper is considered unethical. Translated articles are only acceptable when all necessary consents have been obtained from the previous publisher of the paper and from any other person who might own rights in the paper.

A translated paper that is submitted in another publication without prior approval is considered a duplicate submission.



Translations

Submitting a paper to journals in different languages without acknowledgment of the original paper

Translated articles are acceptable only after an approval has been obtained from the original publisher of the paper.



Quiz

You have worked long and hard on a study. You feel your research is applicable to a variety of disciplines and you can envision the paper appealing to a range of audiences. Is it ok to 'slice up' the same core results into smaller individual papers that can be submitted to a variety of journals in different fields, even if the manuscripts all share the same hypotheses, population, and methods?

- Yes
- No



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Quiz

You have worked long and hard on a study. You feel your research is applicable to a variety of disciplines and you can envision the paper appealing to a range of audiences. Is it ok to 'slice up' the same core results into smaller individual papers that can be submitted to a variety of journals in different fields, even if the manuscripts all share the same hypotheses, population, and methods?

- Yes
- No

The '*slicing*' of research that would form one meaningful paper into several different papers is called '*salami publication*' or '*salami slicing*'. As a general rule, as long as the '*slices*' of a broken up study share the same hypotheses, and methods, this is not acceptable practice.



Source: <http://www.elsevier.com/ethics/>

Salami Slicing

The “slicing” of research that would form one meaningful paper into several different papers is called "salami publication" or "salami slicing".

Slicing not only skews the "scientific database" but it creates repetition that wastes readers' time as well as the time of editors and reviewers, who must handle each paper separately. Further, it unfairly inflates the author's citation record.



Abraham P (2000). Duplicate and salami publications. Journal of Postgraduate Medicine, 46: 67

Duplicate Submissions – A True Story

“We received a submission for publication accompanied by the standard letter signed by all authors that stated that the manuscript had not been submitted to any other journals for consideration. By chance, one of the reviewers we selected received the identical manuscript from another Journal approximately one month later. The second Journal confirmed that they too had received a covering letter stating that the manuscript had not been submitted elsewhere for consideration”.

A TRUE STORY

Consequences:

- Paper automatically rejected from both venues
- Authors banned from submitting papers to these venues for a number of years
- Author names made public



<http://www.wame.org/ethics-resources/duplicate-submission>

Authorship

- Naming authors on a paper ensures that appropriate individuals get credit
- Deliberately adding or removing authors is a form of misconduct
- This undermines confidence in the work itself.



Committee on Publication Ethics (COPE). Committee on Publication Ethics (COPE). How to handle authorship disputes: a guide for new researchers

Quiz

A team of four students worked together on a research paper, and while each person made contributions to the study, some had greater involvement and responsibility for the manuscript than others. Two team members did everything from developing the study concept and design, data acquisition and interpretation, to writing and finalizing the draft for publication. The other two helped with the research, such as assisting with the lab experiments, but had no input into the manuscript. Do all these authors fit the definition of authorship, regardless of the journal?

- Yes
- No



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- Yes
- No

It depends. When you work with others to write a paper, you should make sure to credit each individual involved, indicating his or her contribution. If the paper is truly a collaborative effort, all authors should be credited.



Source: <http://www.elsevier.com/ethics/>

Adding/Removing Authors

Listing names of people who took little or no part in the research, and omitting names of people who did take part are both misrepresentations



“All persons designated as authors should qualify for authorship, and all those who qualify should be listed”¹.

1. International Committee of Medical Journal Editors. Uniform Requirements for Manuscripts Submitted to Biomedical Journals: Ethical Considerations in the Conduct and Reporting of Research: Authorship and Contributorship

Guest Authors

Authorship solely based on an expectation that inclusion of a particular name will improve the chances that a paper will be accepted

Guest authors should not be authors unless they make a contribution .



Research Fraud

- Research fraud is publishing data or conclusions that were not generated by experiments or observations, but by invention or data manipulation



Quiz

You are working on a study and the results are not coming out the way you want them to. You just cannot confirm the hypothesis no matter how many times you rerun the tests. You're the one conducting the research and the only one managing the data analysis. You want to successfully resolve this. What are your options?

- You make very minor modifications to the data and slightly alter the images to keep it consistent. The likelihood of anyone challenging the results are slim
- You leave out the problematic data and only use findings that support your hypothesis
- You consult with your supervisor/team to troubleshoot, even if it means going back to the drawing board.



Source: <http://www.elsevier.com/ethics/>

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There are no short cuts in science. Even if no one suspects an omission or manipulation of data now, it can come back to haunt you. A published paper is a permanent record of your work. And, if you are caught, it can cost your reputation. More important, falsifying results can have repercussions, especially for studies involving therapies that will ultimately be used to treat patients. Unproven or false data can be harmful to patients, and can have far reaching consequences.



Source: <http://www.elsevier.com/ethics/>

Research Fraud - Fabrication

Making up research data and results, and recording or reporting them.¹



Fabrication a very serious research misconduct. It is unethical and unscientific and can result in severe consequences.

1. Office of Research Integrity U.S. Department of Health and Human Services. Definition of Research Misconduct

Research Fraud - Falsification

Falsification includes changing or omitting data or results in such a way that the research is not accurately represented.¹

falsifying results can have severe repercussions, especially for studies involving therapies that will ultimately be used to treat patients.



1. Office of Research Integrity U.S. Department of Health and Human Services. Definition of Research Misconduct

Research Fraud – A True Story

A British scientist was convicted of scientific fraud after falsifying research data. He had tampered with data from pre-clinical trials of an anti-cancer drug while working at the now-closed Edinburgh branch of US pharmaceutical company Aptuit.

**A TRUE
STORY**

- He was sentenced to three months in jail.



<http://www.bbc.co.uk/news/uk-scotland-edinburgh-east-fife-22186220>

What is Human Research?

- Surveys, interviews or focus groups.
- Testing or treatment
- Access to personal information
- Collection and use of human body organs, tissues or fluids



National Statement on Ethical Conduct in Human Research (Australian Government)

Reasons for ethical approval

- To protect the rights and welfare of participants
- To protect the rights of the researcher and the reputation of the university/institute
- Funding and publishing require following the ethical practices



An introduction to ethics issues and principles in research involving human participants (Canterbury Christ Church University)

Points to be considered in Research involving Human participants

- Free, informed and voluntary consent
- Truthfulness and transparency
- Respect of vulnerable groups
- Privacy and confidentiality
- Justice
- Beneficence



European Textbook on Ethics in Research (2010)

Consequences of lack in ethics when Human participants are involved

- Tudor Study (1939 stuttering children)
- Tuskegee syphilis experiment (1932-1972)
- The Thalidomide Babies (1950's)

<http://www.uiowa.edu/~cyberlaw/writing/CUNY1213.html>



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<http://www.uiowa.edu/~cyberlaw/writing/CUNY1213.html>

Quiz

You are a researcher who wants to publish a study undertaken in human participants. Do you need to provide detail about which organization gave ethical approval and how consent was obtained?

- Yes
- No



Source: <http://www.elsevier.com/ethics/>

You are a researcher wanting to publish a study undertaken in human beings. Do you need to provide detail about which organization gave ethical approval and how consent was obtained?

- Yes
- No

It is unethical to undertake a study without evidence of ethical approval and informed consent, and journals will reject your manuscript. As regulations vary worldwide about what type study requires ethical approval, this needs to be specified clearly in your submission letter with supporting documentation. Also undertaking a study without ethical approval can lead to sanctions by institutions and professional bodies.



Source: <http://www.elsevier.com/ethics/>

Research using Animals

- Testing new pharmaceuticals
- Teaching tools for medical students
- Experimental subjects for new surgical procedures.



Opponents of Animal Research

- It is unethical to use animals
- Most human health advances have come from improved sanitation
- Research animals live miserable lives, filled with fear and pain
- Stressed animals are poor models
- Most of the research can be done using alternative methods



Advocates of Animal Research

- We cannot do this research on humans
- Animal research helped in improving human and animal health
- Research animals are well cared for, and can be good models of human and animal biology and disease
- There are no alternatives that can replicate the complexity of a living organism

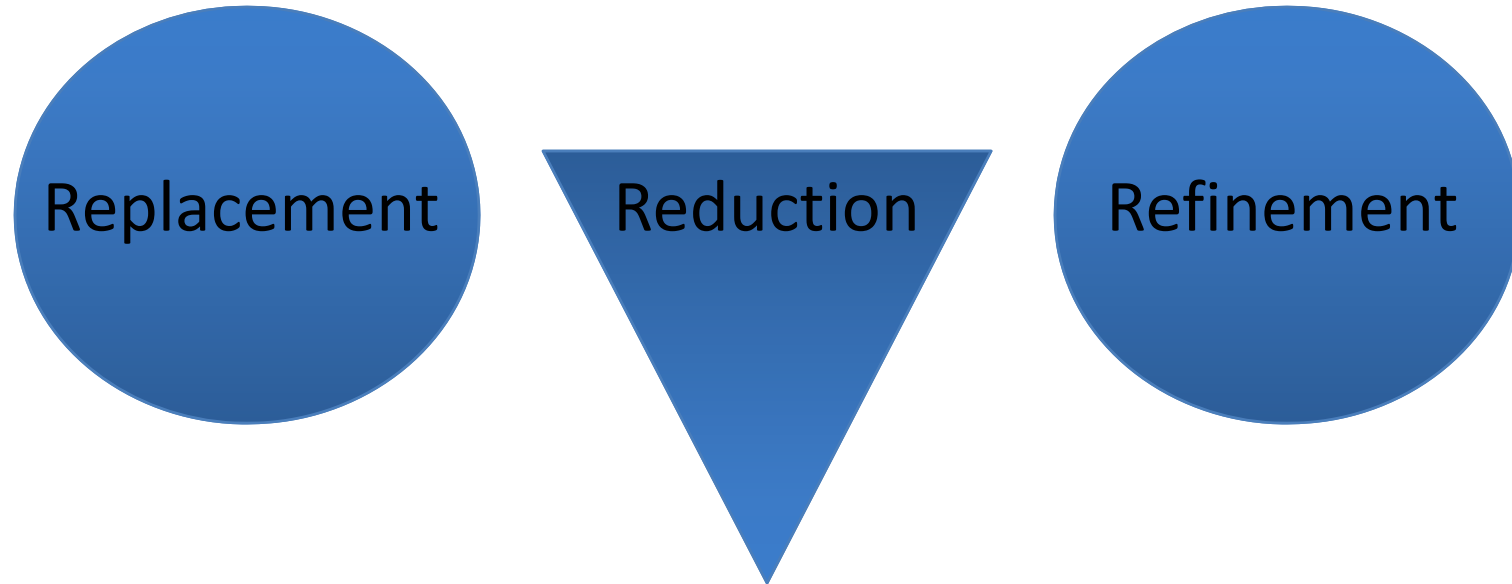


When can Animals be used?

- When there are no other alternatives.
- When research activities are not duplicating previously conducted experiments.
- Experiments involving animals will advance scientific knowledge, or will be for the good of society.

Ethics of Animal Research

- The Three R's



Ethics of Animal Research

- The Five F's
 1. Freedom from Hunger and Thirst
 2. Freedom from Discomfort
 3. Freedom to Express Normal Behavior
 4. Freedom from Fear and Distress
 5. Freedom from Pain, Injury or Disease



Lack of Ethics in dealing with Animals in research

Food giants caught in animal testing scandal

- Nestle, Unilever, Knorr, Hellmann's and Yakult accused of animal testing
- Campaign group claims tests were not to assess food safety but to allow the companies to make health claims about their products

By FIONA MACRAE SCIENCE CORRESPONDENT and NICOLA ROWE

PUBLISHED: 20:13 EST, 20 June 2013 | UPDATED: 20:13 EST, 20 June 2013

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Rabbits, piglets and mice are being killed when heavily pregnant, injected with deadly bacteria and bled to death by food firms testing fashionable superfoods, it has emerged.

The experiments involve food giants including KitKat maker Nestle, Unilever - the owners of PG tips - Knorr, Hellmann's and Yakult, the maker of probiotic drinks.

Food companies stress that animals are used as little as possible and are cared for to the highest standard.



According to the British Union for the Abolition of Vivisection (BUAV) animals including rabbits, rats, mice and piglets suffered as a result of the growing fascination with so-called 'superfoods'

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- The Office of Research Integrity -- <http://ori.hhs.gov/>
- National Institute of Health Training in the Responsible Conduct of Research -- <http://grants.nih.gov/training/responsibleconduct.htm>
- Missouri State University Research Ethics Workshop
- A Guide to Research Ethics - University of Minnesota
- National Statement on Ethical Conduct in Human Research (Australia)
- An introduction to ethics issues and principles in research involving human participants (Canterbury Christ Church University)
- The ethics of research involving animals (Nuffield Council on Bioethics)
- European Textbook on Ethics in Research