According to the American Heritage Dictionary …

Ethics: the rules or standards governing the conduct of the
members of a profession;
any set of moral principles or values;
the moral quality of a course of action.

Integrity: strict adherence to a code of behavior;
the state of being unimpaired, soundness.

Golden Rule

Do unto others
As you would have others
Do unto you.

THE TEN COMMANDMENTS

1. I AM THE LORD YOUR GOD. YOU SHALL WORSHIP THE LORD YOUR GOD AND HIM ONLY SHALL YOU SERVE.

2. YOU SHALL NOT TAKE THE NAME OF THE LORD YOUR GOD IN VAIN.

3. REMEMBER TO KEEP HOLY THE SABBATH DAY.

4. HONOR YOUR FATHER AND YOUR MOTHER.

5. YOU SHALL NOT KILL.

6. YOU SHALL NOT COMMIT ADULTERY.

7. YOU SHALL NOT STEAL.

8. YOU SHALL NOT BEAR FALSE WITNESS.

9. YOU SHALL NOT COVET YOUR NEIGHBOR'S WIFE.

10. YOU SHALL NOT COVET YOUR NEIGHBOR'S GOODS.

Confucianism: One word which sums up the basis of all good conduct... loving kindness. Do not do to others what you do not want done to yourself. (Confucius, Analects 15.23)

HIPPOCRATIC OATH
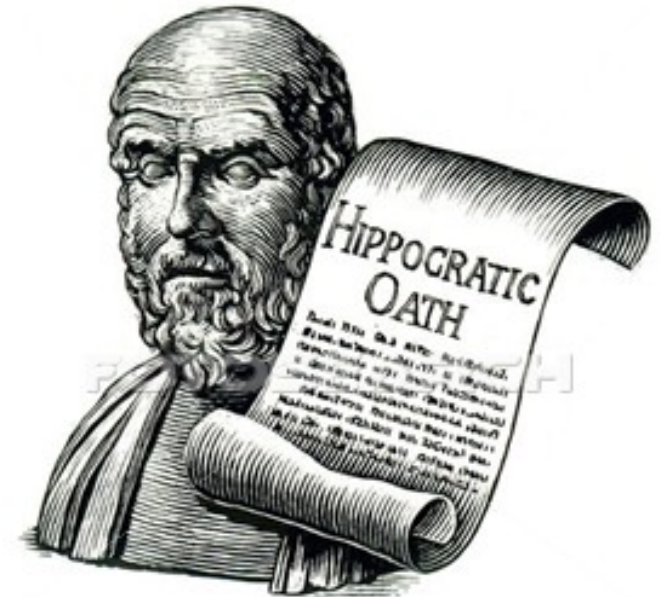
Importance of Ethics in Research

- **promote the aims of research**, such as knowledge, truth, and avoidance of error
- promote the **values that are essential to collaborative work**, such as trust, accountability, mutual respect, and fairness
- ensure that researchers can be held **accountable to the public**
- help to build **public support** for research.
- promote a variety of other important **moral and social values**, such as social responsibility, human rights, animal welfare, compliance with the law, and health and safety.

Research Ethics

Three questions to consider:

"Is it true?"

"Is it fair?"

"Is it wise?"

(Think about the NYT Sugar Industry article as we go through these in more detail…)

Research Ethics: "Is it true?"

- Concerns the relationship of the research results to the physical world
- Scientific integrity:
  - Technical competence / experimental design
  - Data selection and manipulation
  - Application of appropriate statistical methods
  - Falsification (inappropriate changing/omitting)
  - Fabrication ("filling out" additions)
  - Unintentional bias

" Is it good science?"

Research Ethics: "Is it fair?"

- Concerns social relationships within the world of research

For example:

- – Authorship and plagiarism
- – Informed consent (human subject research)
- – Animal welfare
- – Institutional integrity (relationships with sponsoring institutions, funding agencies, government)

Research Ethics: "Is it wise?"

- Concerns the relationship between the research agenda and the broader social and physical world, present and future
- Social responsibilities:
  - research priorities
  - fiscal responsibility
  - public service
  - public education
  - environmental impact

  "Will the research improve human conditions (both present and future) or do harm?"

The NYT Sugar Industry Expose

For each of the three questions:

"Is it true?"

"Is it fair?"

"Is it wise?"

Was there an ethical "violation" and if so, what were the problems?

Research Ethics

US Public Health Service Policy on Instruction in the Responsible Conduct of Research (RCR) includes nine "core institutional areas" that must be covered:

- Data acquisition, management, sharing and ownership
- Mentor/trainee responsibilities
- Publication practices and responsible authorship
- Peer review
- Collaborative science
- Human subjects
- Research involving animals
- Research Misconduct
- Conflict of interest and commitment

Research Misconduct

Research misconduct is defined as fabrication, falsification, or plagiarism in proposing, performing, or reviewing research, or in reporting research results.

Fabrication is making up data or results and recording or reporting them.

Falsification is manipulating research materials, equipment, or processes, or changing, omitting, changing or omitting data or results such that the research is not accurately represented in the research record.

Plagiarism is appropriation of another person's ideas, processes, results, or words without giving appropriate credit.

Research misconduct does not include honest error or differences of opinion

Case Study: Research Misconduct

Dr. Green is developing a new research technique, but it is taking more time than he had planned. He is so sure that the technique will work that he submits a grant proposal based on the expected results from experiments he will eventually run.

- Is it permissible for Dr. Green to submit a grant proposal based on experiments not yet performed?
- Would Dr. Green's actions be considered research misconduct, and if so, which type?

The U of Wisconsin Case

What was the research misconduct in the Elizabeth Goodwin case?

Why might this has happened in the first place?

If you were one of the students in that lab, how might you have reacted to the initial grant application figures?

What do you think of the process (which took a lot of time, energy and more)?

Is there anything else you think any of the groups involved could or should have done?

What do you think of the aftermath?

Authorship

- Authorship is the way that the research community identifies those who should be both recognized and credited with a specific contribution to the work, and held responsible and accountable for the information contained in publications.

- Everyone who makes a significant "intellectual" contribution to the original, new information that is the core of a paper should be considered a potential author.

Criteria for Authorship

- International Committee of Medical Journal Editors (ICMJE 2014), which recommends that authorship be based on:
  - substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work; AND
  - drafting the work or revising it critically for important intellectual content; AND
  - final approval of the version to be published; AND
  - agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Case Study: Authorship

(S = Student, B = Boss, P = Postdoc, a research scientist in the lab)

Mr. S, a graduate student, is a member of a research group headed by Dr. B. He has developed an exciting new research methodology but is experiencing some difficulties related to his thesis project. Dr. P is a postdoctoral fellow in the same group who believes that she may have found a solution to Mr. S's difficulties. Dr. P designs and carries out a small pilot study based on Mr. S's work, and the results lead her to draft two papers.

The first paper describes the rationale and methodology that Mr. S developed as part of his thesis project. Dr. P includes Mr. S's name on the author list for this paper. However, Dr. P does not place Mr. S's name on the second paper. Even though the methods were initially developed by Mr. S. Dr. P claims that it is her original work and she wants the paper to stand out in a journal with just two authors (herself and Dr. B).

- How should authorship issues related to the first paper be handled?
- How should authorship issues related to the second paper be handled?
- Should Dr. B, the head of the research group, be listed on either paper? Why or why not?

Influential Research Ethics Policies

- The Uniform Requirements for Manuscripts Submitted to Biomedical Journals (International Committee of Medical Journal Editors),
- The Chemist's Code of Conduct (American Chemical Society),
- Code of Ethics (American Society for Clinical Laboratory Science) Ethical Principles of Psychologists (American Psychological Association),
- Statements on Ethics and Professional Responsibility (American Anthropological Association),
- Statement on Professional Ethics (American Association of University Professors),
- The Nuremberg Code
- The Declaration of Helsinki (World Medical Association).

General summary of some ethical principals that various codes address

- Honesty
- Objectivity
- Integrity
- Carefulness
- Openness
- Respect for intellectual property
- Confidentiality
- Responsible publication
- Responsible mentoring
- Respect for colleagues
- Social responsibility
- Non-Discrimination
- Competence
- Legality
- Animal care
- Human subjects protection

http://www.niehs.nih.gov/research/resources/bioethics/whatis/

What I hope you learn and learn to evaluate …

Sensitivity and Awareness: can you recognize the ethical issues in scientific research?

Reasoning: can you reason through ethical dilemmas presented in model studies?

Motivation: do you understand your ethical responsibility as a scientist?

Action: what will you do when faced with an ethical dilemma?

Ethics Session Case Studies
(the week after Thanksgiving)

- 10-12 minutes of session time total
- At a minimum, the information covered in the case study must be covered
- Get creative: you may add details to the case, present the case in a creative way, or go beyond the basics of the case
- Divide the work and session time up among group members as evenly as possible
- Involve/engage the class
- Discuss what sort of an ethical problem (category-wise) the case is (there may be more than one problem raised)
- Cover what actions should/could be taken to attempt to remedy the situation/get justice for any wrong-doing