

BIOETHICS

INTRODUCTION

<http://www.sci.sdsu.edu/classes/biology/bio610/bernstein/>

Course Goals

Education

- **Introduction to ethical practices and controversies in science**
- **Discussion of scientific and ethical bases of controversies**

Outcomes

- **Educated individuals who are capable of acting ethically in controversial areas**
- **Individuals capable of providing scientific advice on ethical issues to policy makers**

Scientific Integrity

- **Authorship issues**
- **Plagiarism**
- **Falsification of scientific data**
- **Ownership of scientific data**

Patenting biological molecules and organisms

- **Need to show utility**
- **Patenting DNA sequences**
- **Patenting organisms (transgenic animals)**
- **Record keeping**

Dealing with animals in an ethical manner

- **What is an animal?**
- **Priority of human needs**
- **Risk vs. benefit**
- **Regulations**

Animal cloning and genetic engineering

- **Saving species**
- **Improving livestock**
- **Use as producers**
- **Frivolous uses**

Human subjects

- **The horrors of history**
- **Regulations & ethical principles**
- **Research design: risks vs. benefits**
- **Designing ethical pharmaceutical studies**
- **Informed consent**
- **Pharmacogenomic testing**
- **Genetic screening and privacy**

Gene delivery and therapy

- **Somatic vs. germline**
- **Safety**
- **Methods**
- **Efficacy**
- **Morality**

Human stem cells and cloning

- **Embryonic vs. adult stem cells**
- **Regenerating tissues and organs**
- **Engineering tissues and organs**
- **Producing clones**

Agricultural biotechnology ethics

- **Improving crops (pests and nutrition)**
- **Health consequences**
- **Ecological consequences**

Biological warfare

- **Fears and Regulations**
- **Protections**

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