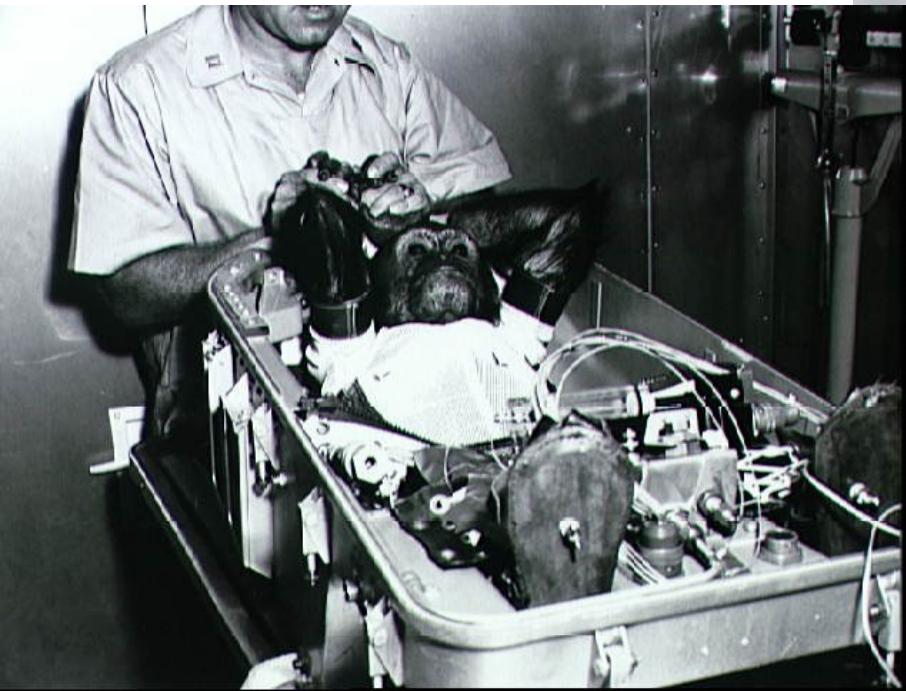


# Non-human Animals in Research



# Inquiry 3 proposals due in lab...



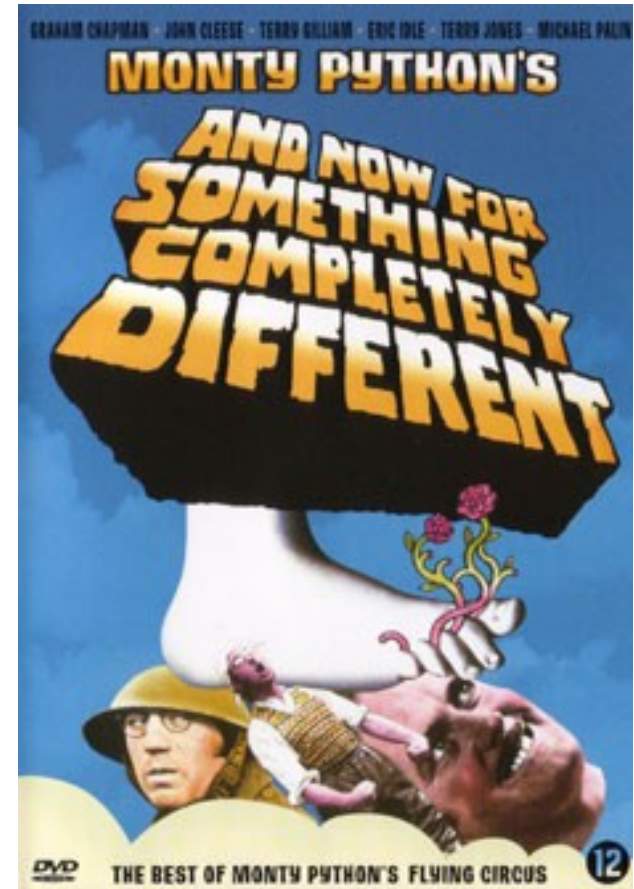
Inquiry 3 proposals due in lab...  
Groups must be 3-5 people.





Inquiry 3 proposals due in lab...

Can be a similar idea or completely new.



Inquiry 3 proposals due in lab on...

Can be a similar idea or completely new.

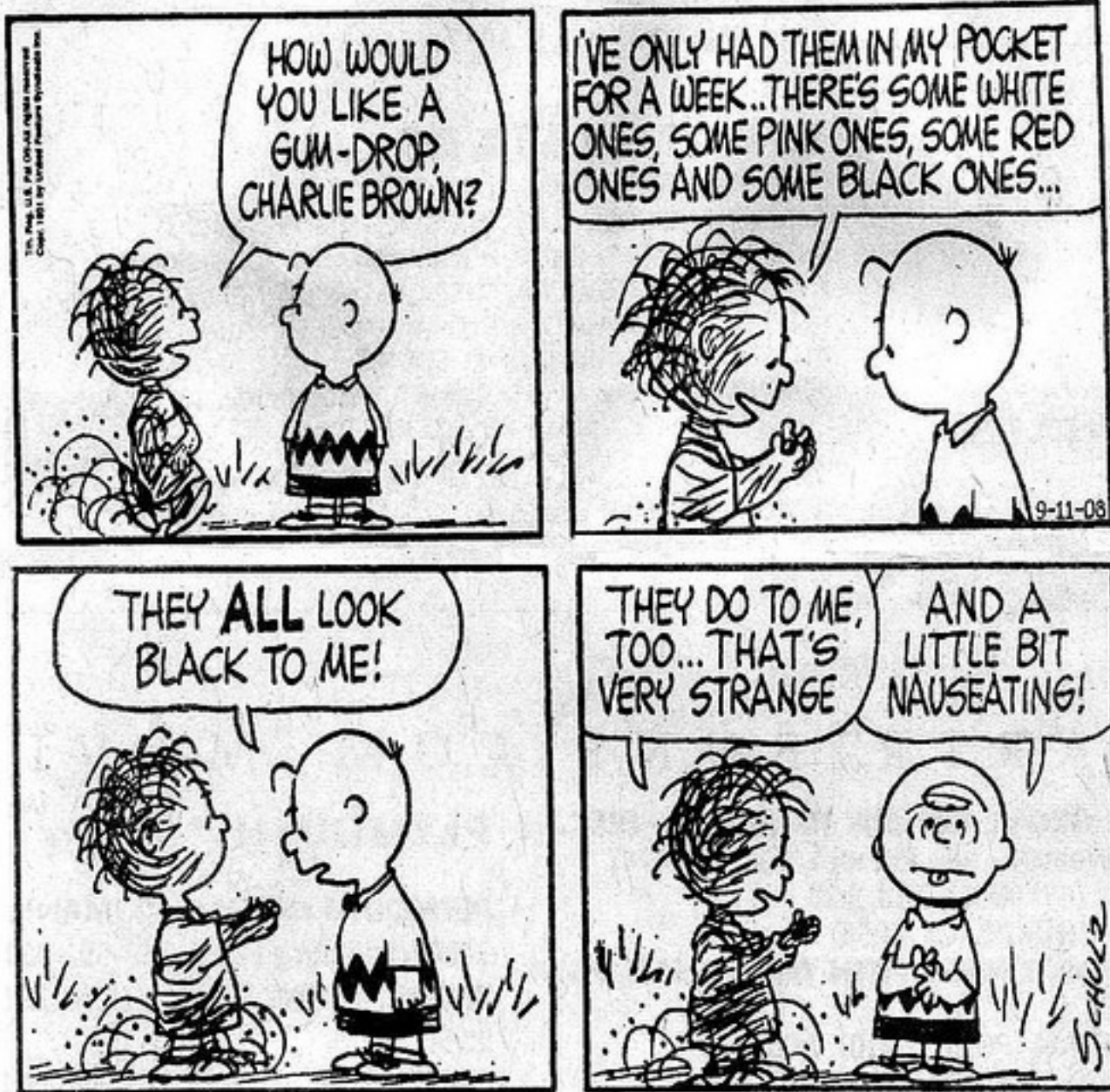
Bring a back-up plan.

Inquiry 3 proposals due in lab on...

Added to inquiry 3 proposal:

Rationale- explain why you will do the experiment. How will your discovery add to our knowledge?

# Please cleanup from inquiry 2.



What kind of interactions do we have with non-human animals?



# We eat them





We keep them as pets





# We put them to work





We hunt them





We see them in zoos





We put them in  
the circus





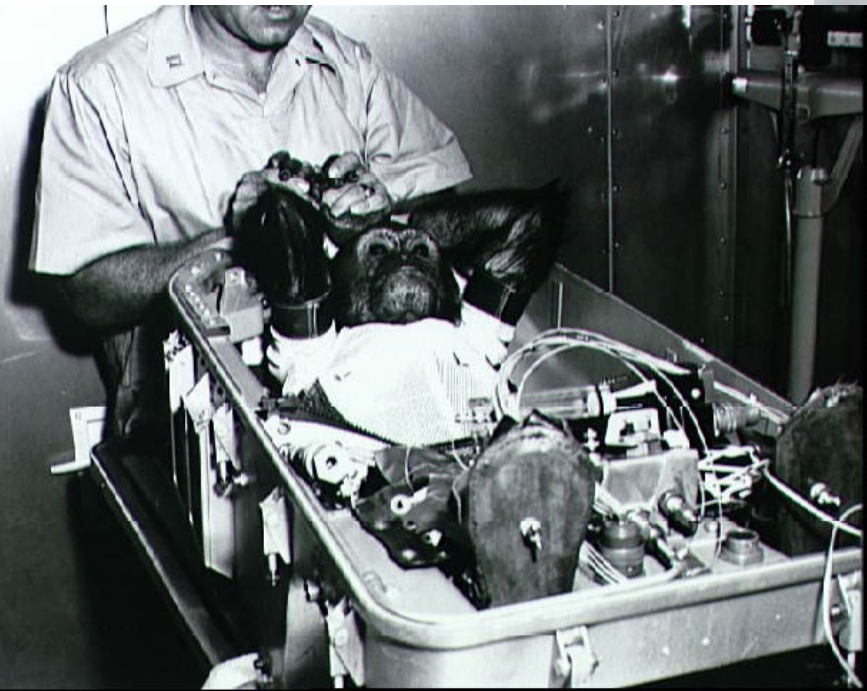
They ride  
motorcycles



We study them



We use them in  
research



How different are we from other animals?  
...Not much.



# Ethics of using animals in research



Animals  
should have  
the same  
rights as  
humans

Animals  
have no  
rights and no  
“humane”  
treatment is  
warranted

What justification is there for our differential treatment of non-human animals?



1966, first federal laws setting forth guidelines for care of animals in research.

Each institution is required to have an Institutional Animal Care and Use Committee (IACUC) (<http://www.utexas.edu/research/rsc/iacuc/index.html>)

Based on-

Scientific Integrity: an Introductory Text with Cases, 2nd ed. (2000) Marcina, F. L. ASM Press, Washington, D.C.

The University of Texas at Austin's IACUC committee is comprised of 14 voting members

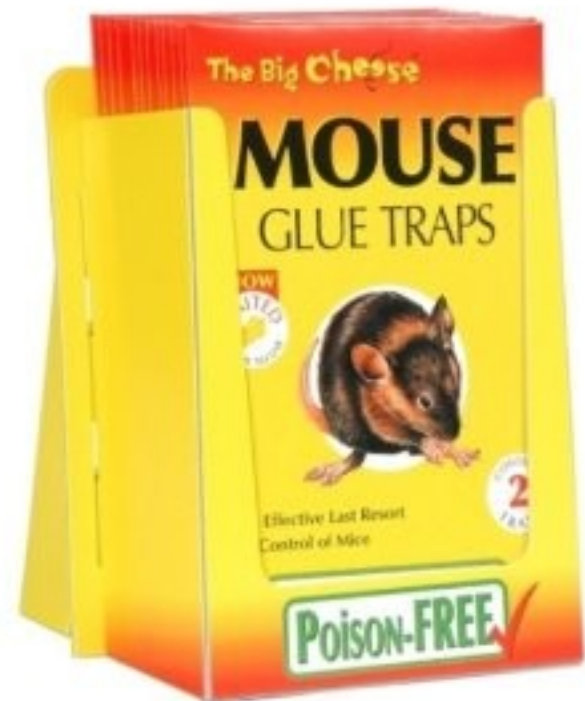
Federal law states that the committee must have a minimum of five members including:

- a veterinarian
- a scientist experienced in laboratory animal procedures
- a non-scientist and a non-affiliate

The responsibilities of the IACUC include:

1. Inspect all of the animal facilities at least once every six months.  
(announced inspections)
2. Review the animal resource center's program for the utilization of animals in research at least once every six months.
3. Review and approve, require modifications to, or withhold approval to animal care and use protocols.
4. Review and investigate legitimate concerns involving the care and use of laboratory animals resulting from public, employee or student complaints.
5. Suspend an activity involving animals if non-compliance is verified; take corrective action and report non-compliance to funding agencies.

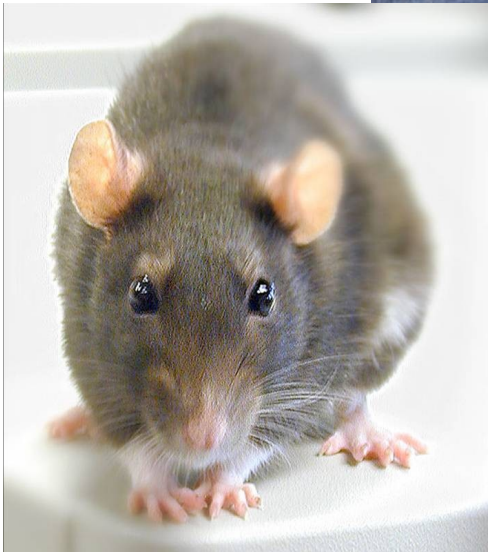
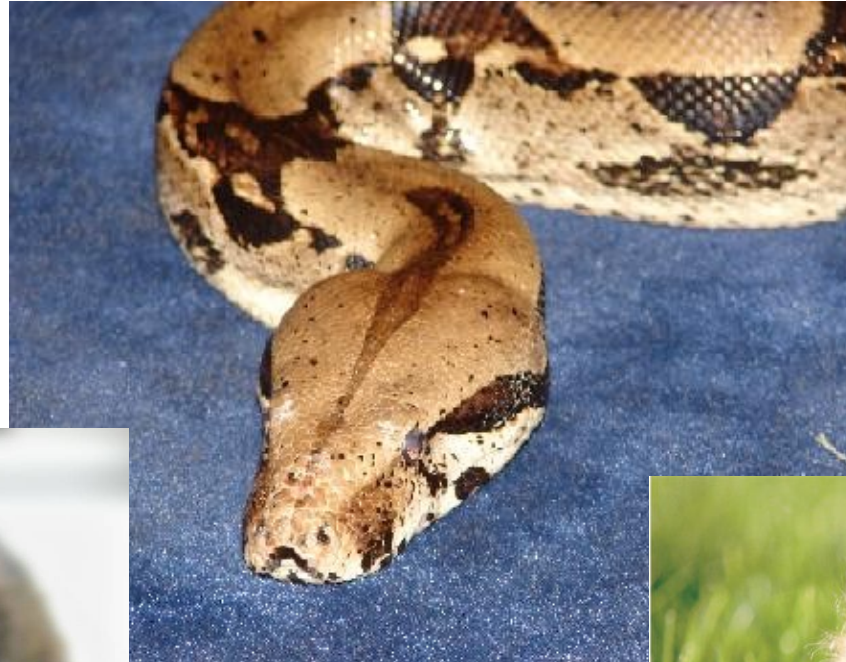
Why do researchers need special rules and regulations for mice in experiments while “inhumane” sticky traps can be used to kill pest mice?



Based on-

Scientific Integrity: an Introductory Text with Cases, 2nd ed. (2000) Marcina, F. L. ASM Press, Washington, D.C.

Is it more moral to raise a rat to feed a snake or get a kitten from the pound?



Based on-

Scientific Integrity: an Introductory Text with Cases, 2nd ed. (2000) Marcina, F. L. ASM Press, Washington, D.C.

# How do we quantify animal suffering?

- Do they show pain/fear as humans do?
- Can we quantify how much an animal is suffering?
- “Animal suffering: unknowable?”

<http://www.the-scientist.com/blog/display/55073/>





Does using non-human animals make humans safer?

Many drugs have been found safe in other mammals, but unsafe in humans:

Thalidomide, Flenac (Fenclofenac), Baycol (Cerivastatin), and Vioxx

While some medicines safe for humans are toxic in other animals:

Aspirin and penicillin

# COMPARISON OF THE LD50 IN RATS AND MICE

(NIOSH/Registry of Toxic Effects of Chemical Substances)

Chemical	Rat mg/kg	Mouse mg/kg	Ratio
Carbon tetrachloride	2,350	8,260	0.28
Dextropropoxyphene HCl	84	225	0.37
Dichloromethane	1,600	873	1.8
Diphenylhydantoin	1,640	150	10.9
Ethanol	7,060	3,450	2.0
Mercury (II) chloride	1	6	0.17
Nicotine	50	3	16.7
Paracetamol	2,400	340	7.0
Sodium oxalate	11,200	5,100	2.2
Thioridazine HCl	995	385	2.6

This was not covered in class, but I left these slides in case you are interested.

The Center for Alternatives to Animal Testing is an academic center at Johns Hopkins University.

<http://caat.jhsph.edu/index.htm>

This was not covered in class, but I left these slides in case you are interested.

What are the alternatives?

- *In vitro* research- use cells grown in a lab instead of a whole organism
- Computer simulations (Bioinformatics)
- Use simulators for teaching

This was not covered in class, but I left these slides in case you are interested.

## What are the alternatives?

- Use simulators for teaching





This was not covered in class, but I left these slides in case you are interested.

## What are the alternatives?

- Use simulators for teaching

Only 8 of the 154 accredited medical schools in the U.S. report using live animals.



The EU is/has outlawed the use of animal testing of cosmetics.

The EU and cosmetic industry has spent about \$65 million over the last several years to develop alternate tests.

This was not covered in class, but I left these slides in case you are interested.





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Inquiry 3 proposals due in lab...



Assignment #1 about the guest lecture is due on Th 10/27