Review

- What is a valid argument?
- What is a sound argument?
- What is an inductive argument?
- What is a fallacious argument?
Announcements

• Fourth written assignment has been posted
• Peer reviews from last week have been posted
Non sequitur

• Conclusion does not follow from premises.
• “It does not follow”
• Examples:
  You’re a computer science major. You should fix my computer.
  Kanye West was rude to Beck. His music sucks.
Non sequitur

- Appeal to popularity
- Appeal to consequences
- Appeal to emotion
- Appeal to nature
- Appeal to novelty
- Appeal to tradition
- Appeal to authority
- Appeal to threat
Fallacy Fallacy

• If the argument contains a fallacy, then the conclusion is false.

• Examples:

  STRAWMAN! STRAWMAN! Stop strawmanning me!

  Ad hom! Ad hom!
Ad hominem

- Attacking the person instead of their argument
- “To the person”

Example:

You think the Xbox controller is better than the Dual Shock? You’re just an Xbox fanboy.
Poisoning the Well

• A preemptive ad hominem attack

Examples:

*My opponent is a communist. Don’t listen to them.*

*Only a terrorist would want to lower the military budget.*
Tu quoque

• Appealing to hypocrisy (ad hominem)
• “you also”

Example:

How can you argue stealing is wrong, thief?

Of course one of the reasons that some of the media have picked up on FinFisher products and make such a fuss is that some of them... have been shown in the past to be by their own admission guilty of the most appalling breaches.
Appeal to Authority

• Inverted ad hominem. Because an authority agrees with your position, it is true.
• Example:

_100 scientists agree that cigarettes don’t cause cancer._
Strawman

• Attacking an artificial or weak argument instead of your opponent’s actual argument
• Listen for phrase “So you’re saying…”
• Example:

"So don't get the wrong idea," he wants to say to us, “Yeah, I'm asking Congress for permission to go kick butt, but don't think that's what we're doing.”
Equivocation

• Using ambiguity of meaning to mislead.
• Examples:

*I have the right to make money, therefore making money is right.*

*Nothing is better than being happy.*

*Having $2 is better than nothing.*

*Having $2 is better than being happy.*
Argument from Ignorance

• You can’t prove me wrong, therefore I am right.

Example:

We can’t understand how crop circles are formed with such complex patterns, therefore they must be made by aliens.
Name that fallacy!

- *I see miracles everyday*
  
  *Oceans spanning beyond my sight*
  
  *And a million stars way above em at night*

- If Europe’s health care system is so great, why don’t you move there?

- *Nobody can prove that there is not between the Earth and Mars a china teapot revolving in an elliptical orbit.*
Complex Question

• Sticking a presupposition into a question.

Examples:

How often do you beat your wife?

How can you support this tax? Don’t you believe in freedom?
Begging the Question

• Assuming the conclusion in your argument.

Example:

There is no god but Allah, and Muhammad is his prophet. Let’s assume for the sake of argument that your God is the one true God. That would mean Allah is not the one true God. Which we know he is. Don’t you see your logic eats itself!
False Dilemma

• Two options are presented as the only choices, but others are possible

Examples:

*America must cut military spending or we will go into debt.*

*If we reject moral relativism, we must accept moral absolutism.*
Argument to Moderation

• Assuming the middle of two positions is correct
• Examples

*Some people think vaccines cause autism. Others disagree. The truth is somewhere in the middle.*

*Arrays should be indexed starting from 0.5*
Post Hoc Ergo Propter Hoc

- Correlation implies causation
- “After this, therefore because of this”
Naturalistic Fallacy

• Inferring *ought* from *is*

• Example:

*Women should marry and have children, because that is their role in society.*

*Our ancestors ate meat, so we should be carnivores.*

*If I don’t make this technology, someone will.*
Name that fallacy!

• *T-Rex* is a pretty sweet dude, *because he’s always so friggin’ awesome!*
• How long did you plan to cheat on your exam?
• *Either you’re with us or you are with the terrorists.*
• GMOs should be banned, because they are unnatural.
False Analogy

• A faulty analogy is used to make an argument
• Examples:

An MP3 is like an album. Copying it is stealing!
Azodicarbonamide is used in yoga mats. You wouldn’t eat a yoga mat!
Special Pleading

• Making an exception to a rule with no justification
• Example:

*I don’t have to stop for traffic lights, because I’m a veteran.*

You can’t detect my psychic powers because you don’t believe in them.
No True Scotsman

• A generalization is only true because exceptions are ignored

*There are no American terrorists, because no true American would be a terrorist.*
Slippery Slope

• Arguing that one event must inevitably follow from another without justification

• Examples:

  * Allowing the NSA to spy on us will lead to a fascist dictatorship.

  * If we legalize pot, we’ll eventually legalize heroine and crack, too.
Genetic Fallacy

• Conclusion based on the origin of an idea
• Examples

Linux is the best operating system, because Linus Torvalds is a genius.

Rocket technology started with the V-2 rocket. We should not use it.

Don’t say The Pledge of Allegiance. It was written by a socialist.
Texas Sharpshooter Fallacy

• Inferring conclusions by pattern mining data
• Count “hits” and ignore “misses”
• Example:

Nostradomus predicted 9/11!
Five and forty degrees, the sky shall burn
To the great new city shall the fire draw nigh.
Composition/Division Fallacy

• Composition: arguing that the whole has the attributes of its parts
  This laptop is the best. It has the best processor, RAM, and hard drive.

• Division: arguing that the parts have attributes of the whole
  I can eat table salt, so it is safe to eat sodium.
Name that fallacy!

• I shouldn’t be given a DUI, because I can hold my liquor.
• If we pardon this criminal, nobody will respect the law anymore.
• People who drink coffee every morning are as dangerous as heroine addicts.
• If a movie wins best screenplay, director and cinematography, it should win best picture.
COGNITIVE BIASES
Confirmation Bias

• We search for, interpret and recall information that confirms our beliefs and ignore the rest.
Just-World Hypothesis

• We are biased to believe that what happens to a person was caused by their actions.
Fundamental Attribution Error

• We tend to explain other people’s behavior by their internal attributes while ignoring external factors.
Actor-Observer Asymmetry

- Evaluating our own behavior, we attribute it to our situation.
- Evaluating other’s behavior, we attribute it to their personality.
Self-Serving Bias

• We accept positive feedback as deserved.
• We reject negative feedback as invalid.
Belief Bias

• We are biased to judge the strength of an argument by our belief in conclusion, ignoring the support
Hindsight Bias

- Bias to believe, after an event has occurred, that it was the obvious outcome.
Resources

• bookofbadarguments.com
• yourlogicalfallacyis.com
For me, it is far better to grasp the Universe as it really is than to persist in delusion, however satisfying and reassuring. -Carl Sagan