This tutorial looks at two ways of having bias, deliberate bias and unintentional bias. With unintentional bias, it's not done on purpose. The researcher is not intentionally misleading. It comes from an error in the design.

The other forms of bias that other tutorials have looked at, like selection bias, response bias, non-response bias, measurement bias, as long as the researcher is doing these accidentally and not on purpose, they will be unintentional forms of bias. On the other hand, we have deliberate bias. This is the one to be concerned about. It's where the researcher is motivated to purposefully misconstrue results or to purposely design their study in a particular way.

Now. The researcher is trying to advance an interest. This interest could be financial, it could be ideological, or could be personal. One way of doing this is designing your poll questions to push a certain response. We'll look at a couple examples on the next slide.

An example of deliberate bias is the aspartame studies. There is a long series of controversial reports showing that aspartame did hurt people, that aspartame didn't hurt people. And part of the issue was that soda companies, ones that use a lot of the aspartame in their diet brands, were the ones publishing the studies that said that aspartame had no effect.

When people tried to replicate the studies on their own, they were finding that aspartame did have a negative effect. But these people were also motivated. They're also trying to show that the Coke companies were wrong. So when it came to the results, no one knew who to trust, because both sides had different motivations. Both sides are trying to push forward a certain financial or ideological purpose.

On the other hand, cigarettes studies have done something similar as well. Several cigarette companies came out with surveys that show that cigarettes weren't as damaging. One case happened recently when a company partnered with the University of California in order to both evaluate a set of data.

When the cigarette company went through the set of data, they had slightly tweaked the protocol in evaluating it and found pretty low levels of toxicity in cigarettes. When the University of California went through and replicated the study, they maintain the same protocols as originally set up and found pretty high levels of toxicity. So one way of kind of catching or correcting deliberate bias is by having people reproduce your work or by doing peer reviews.

Now, another key point is that authors should note conflicts of interest. Again with cigarettes, one researcher published a result that 80% of lung cancers could be prevented. This was an astonishing result.

However, people later found out that she'd been heavily funded by a cigarette company. They felt like they could no longer trust her conclusions, because she hadn't revealed that up front, and because a cigarette company would like to say that yes, lung cancer can be prevented. So by noting conflicts of interest up front, it helps people to be able to make decisions in real time about whether or not to trust your information.

On the other hand, with unintentional bias, it's not done on purpose. Some examples of that would be using a phone survey during the day. You're not intentionally excluding everyone who works. But because of your design, you end up doing that. In correcting your design, you can correct your bias.

Another case would be not using a placebo. And not using a placebo, you open up the experiment to experimenter effect and to let the participants' knowledge about whether or not they're on a control or a treatment bias their results. So that can be shifted, that can be corrected for by using a placebo.

Deliberate bias can be corrected as well. But you'd have to redo the study with unbiased people involved and with non-motivated researchers who aren't trying to purposely construe the study in a certain way. This is the end of your tutorial on deliberate and unintentional bias.