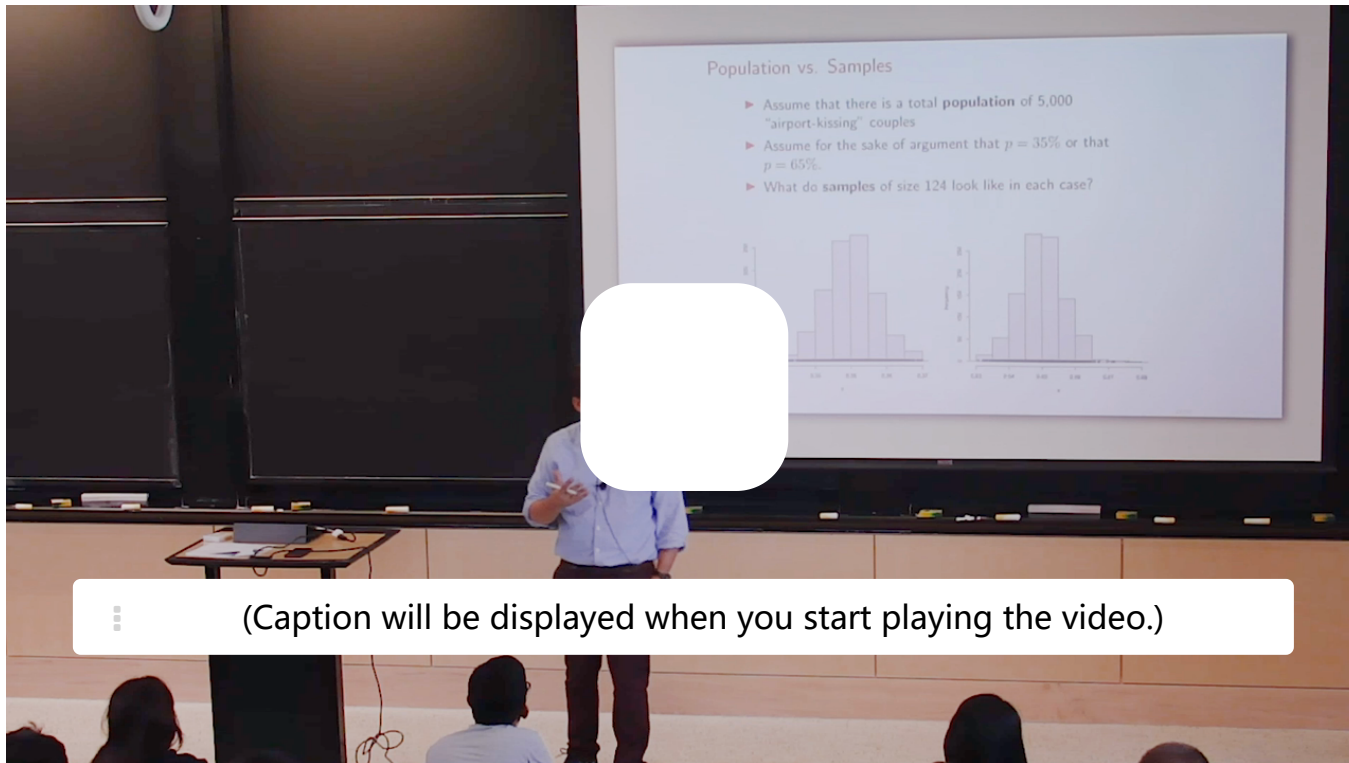


10. Population versus samples

Population versus samples

[Start of transcript. Skip to the end.](#)



OK, so remember this little central dogma for a billion statistics?

That you know the truth, you actually can generate what the observations look like.

And you want to go the other way around. So let's try to understand the probability to statistics part first, OK?

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We denote the sample average, or sample mean, of n random variables X_1, \dots, X_n by

$$\bar{X}_n = \frac{1}{n} \sum_{i=1}^n X_i.$$

I.I.D. assumption

1/1 point (graded)

What happens with our assumption of the observations of the kiss orientation being i.i.d. Bernoulli if we assume that the preferred orientation changes with the time of day?

- ☐ The observations will always be dependent, so it is violated
- ☒ We will have to be more careful about how we collect observations ✓
- ☐ No matter how we sample, we will still have i.i.d. observations

Solution:

The model will be more complicated, in particular, we cannot simply assume that all observations are **Ber** (p) across different times of the day. However, when we draw our collection times randomly from the hours of the day, we could still assume that there is some p' that corresponds to the average of personal preferences throughout the day, and still work under the i.i.d. assumption.