	Lecture - 01 08/26/2020
~	clearly and then sample is elements in
	- market to the market blugger bad
	Survey: Who has a iphone?
0.86	Population has size N You have some
	Standard notation for a "datum" and
	$X_1 = 0$; $X_0 = 0$, $X_3 = 1$, $X_4 = 1$, $X_5 = 0$, 1 , 1 , 0 ,
wellim o	$X_1 = 0$; $X_0 = 0$, $X_3 = 1$, $X_4 = 1$, $X_5 = 0$, 1 , 1 , 0 , first, $X_5 = 0$,
	tiret
_ X X	x retals of one of the class x
redto too	n=20 15 our "sample" 12 1's; 8 0's
.001	aluga all aimplabres and an artist of
	The second of th
	Do we believe this survey is a "sample" of n = 20 elements from a supersed called the "population"? If we do, this is called the "population model sampling assumption."
s At	n = 20 elements from a supersel called the
	"population"? If we do, this is called the
	" population model sampling assumption."
slama	19:3 13 (0) (0) (0) (0) (0) (0)
. 90	If so, what is that population?
odt 1	as - All people on Earth and ullough
noit of	and - All people and America) wobon
	- All college Students
mort	-All college students in NYC?
	- All public college students in NYC?
	- All college students in NYC? - All public college students in NYC? - All QC students?
	Charles and the second
C= los	Is this sample representative of the population?
mference	perticular you can "NEVER bearsure you
	This is typical a sample, assume a population
	model, then identify the representative population.
	This is typical a sample, assume a population model, then identify the representative population. This happens in data science all the time.
encit	In classical statistics, this goes in the opposite direction. You begin by defining the population
	direction. You begin by defining the population

rample of	10 - autau /
Cette	clearly and then sample n elements from
	the land then sample in eletheris
	that population.
	D. I. I. and N. M. have come idea
	Population has size N. You have some idea of what Nors.
1 1 1	of what my sign in the man before
1 1	Of population = all americans => N = 330 million
, I	populotion = all americans = 10 = 330 million
C2.X	pante.
	We see the data X1, 12, , An
	Population Semple data in the population
	Population somple data in the population.
1,	
17	College of land of the anniversary from the
	Can we learn about the population from the
	Sample :
	This is colled "inference." We use the sample
	to " infer" channeling when the sample
	Herethy the properties are more of the
	to "infer" properties about the population. Usually the properties are parameters of the random variable which creates the population.
75	tarion variable which creates me population.
	"Onler" means to make an educated oness from
	Inter" means to make an educated guess from specific things to universal properties. A synonym is "induction"
	A smonum is "induction"
Sail	The opposite is deduction which is universal => particular. You can "NEVER" be sure your inference is correct.
-	particular You can "NEVER" be sure your inference
1015/11	is correct.
noitalu	you suitable and a set allost and dates
	How is inference done with data?
stizages	You generate "statistics" which are functions of the data
acidolos	of the data
No. of the second	

dato Xn)o a notamites by statistical (usually scalar) What can you infer with this statistic? usually, you inter A, the population parameter which is the "true proportion" of iphones "Statistical interence" - using statistics to make -> # of people in the population that have iphones (unknown)

parameter (unknown property) 0, /N, 2/N, SN-D/N, 1 I therpotometer

not ochosilog and and space

18 that Greek siletters represente unknown quantities and roman known quantities letters represent A is a "point estimate" for the unknown that "Point" meaning one specific value which you believe is a good guess for the value of "point estimate" for the unknown theta.

"Point estimation" is one of the goals of statistical inference. The other two are I Confidence set creation and II theory testing (testing a theory about a specific value of the a al a "certainly level" alpha.) one element from the population Let's sample How should this element be chosen a " representative ample If I want n= sample? Randomly but specifically, uniform meaning element has probability of /N of being chosen. That's called a "Simple random o is the Aprobability that # X = 1? - specific value modeling the - the realization a value in the support of x,)