POPULATION VS. SAMPLE

(PARAMETER VS. STATISTIC)

- PAY ATTENTION TO PERSPECTIVE

EX 1) Interested in studying stat students at CU Boulder

POP: All MATH 2510 students

SAMP: MATH 2510 SECTION 009   (NOTE: For Krisztina this is a convenience sample)

EX 2) Interested in studying all of Krisztina's stat students

POP: MATH 2510 SECTION 009   (Krisztina only teaches one section)

SAMP: MATH 2510 SECTION 009 students who sit in 1st, 3rd, or 5th row (NOTE: this sample is selected systematically)

- YOU MUST UNDERSTAND POP VS SAMPLE TO DECIDE PARAMETER VS STATISTIC.

EX) POP: All statistics students @ Flagship Universities

SAMP: All statistics students @ CU Boulder, UMASS Amherst & UW
(NOTE: this may be a cluster sample)

PARAMETER: Avg. height (inches) of all stat students @ Flagship Universities

STATISTIC: Avg. height (inches) of all stat students @ CU Boulder, UMASS Amherst, & UW.

SAMPLING TECHNIQUES
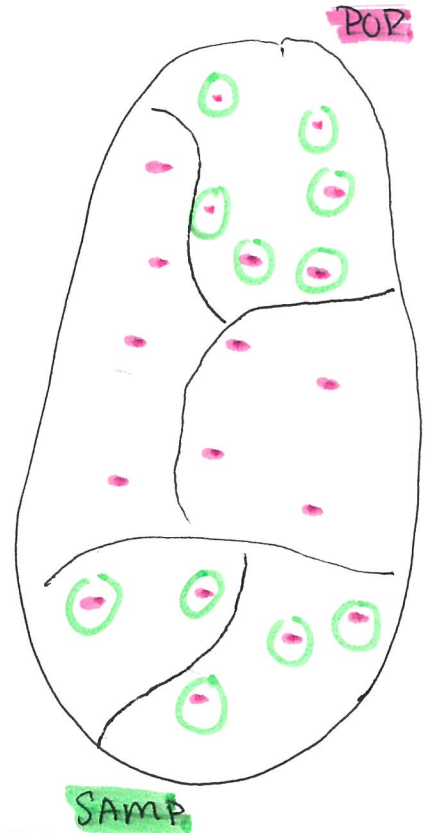
STRATIFIED:

1. Divide POP into categories

2. SAMP randomly chosen from each category (so all categories represented in sample)

POP

SAMP

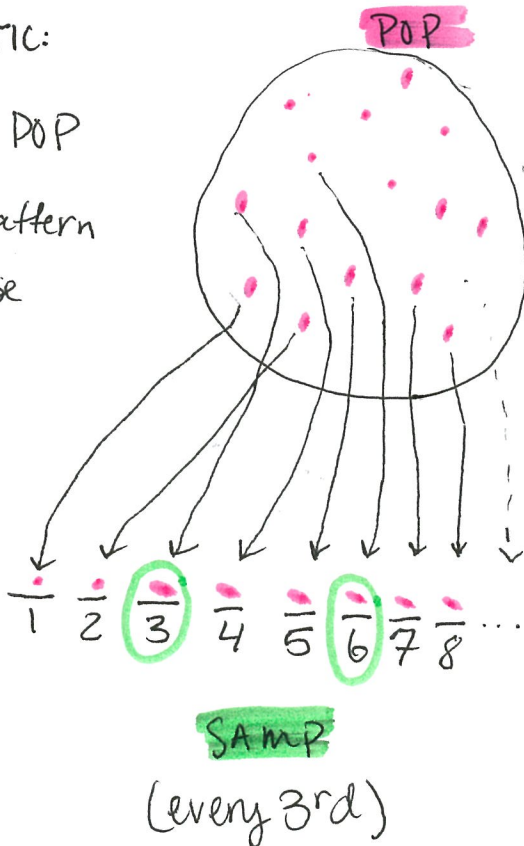## CLUSTER:

1. Divide POP into categories

2. SAMP randomly chosen by including entire categories (not all categories represented)

POP

SAMP

SYSTEMATIC:
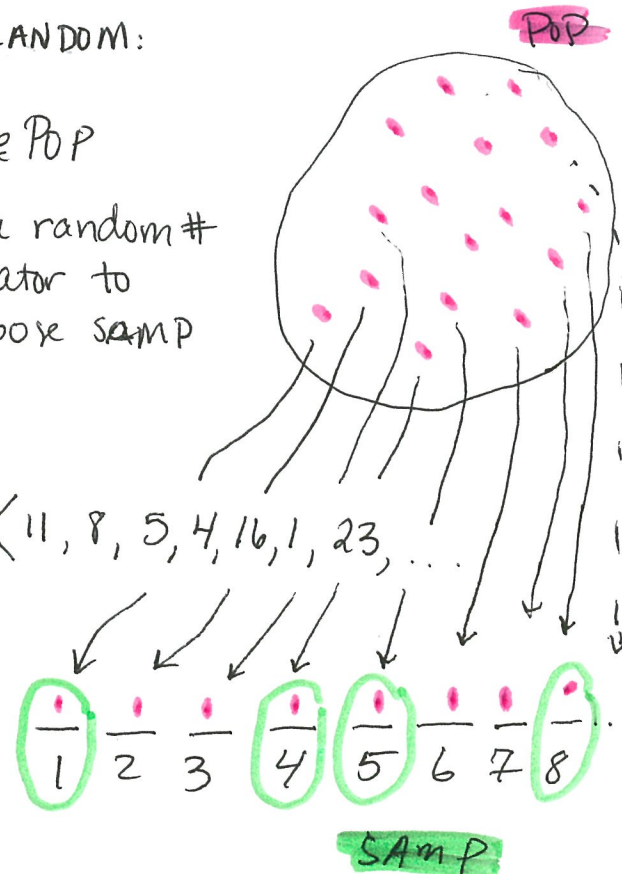
1. Arrange POP

2. Use a pattern to choose SAMP.

POP

$$\frac{}{1} \quad \frac{}{2} \quad \boxed{\frac{}{3}} \quad \frac{}{4} \quad \frac{}{5} \quad \boxed{\frac{}{6}} \quad \frac{}{7} \quad \frac{}{8} \cdots$$

SAMP

(every 3rd)

SIMPLE RANDOM:

1. Arrange POP

2. use a random # generator to choose SAMP

POP

Random # Generator ⟨ 11, 8, 5, 4, 16, 1, 23, ...

$$\boxed{\frac{}{1}} \quad \frac{}{2} \quad \frac{}{3} \quad \boxed{\frac{}{4}} \quad \boxed{\frac{}{5}} \quad \frac{}{6} \quad \frac{}{7} \quad \boxed{\frac{}{8}} \cdots$$

SAMP

LEVELS OF MEASURMENT

NOMINAL:

Categories/Names (not in order)

EX) Types of BBQ Food

Burgers, Veggie Skewers, Chips

ORDINAL:

Ranked order (arithmetic not possible)

EX) Favorite BBQ Food

1. Veggie Skewers
2. Burgers
3. Chips

INTERVAL:

Ordered measurment(where in between and arithmetic possible)

EX) Temp (F) of BBQ Food

Veggie skewer: 130° F

Burger: 1450 F

Chips: 70° F

RATIO:

Special version of interval (absolute boundary not able to go beyond)

EX) Price of BBQ Food

Veggie skewer: $3.50

Burger: $5.00

Chips: $2.00