

INTRODUCTION

Def: STATISTICS IS THE STUDY OF ANALYZING DATA, I.E. COLLECTED MEASUREMENTS.

Def: DESCRIPTIVE STATISTICS CONSISTS OF PROCEDURES USED TO SUMMARIZE & DESCRIBE THE IMPORTANT CHARACTERISTICS OF A SET OF MEASUREMENTS

Def: INFERENTIAL STATISTICS CONSISTS OF PROCEDURES USED TO MAKE INFERENCES (CONCLUSIONS BASED ON EVIDENCE) ABOUT POPULATION CHARACTERISTICS FROM INFORMATION CONTAINED IN A SAMPLE DRAWN FROM THE POPULATION



“ HOW LONG DO COMPANY X'S LIGHTBULBS LAST? ”

DESCR. STATS : WHAT DO WE KNOW ABOUT THESE 10 LIGHTBULBS ?

INF. STATS : WHAT DO WE KNOW ABOUT ALL LIGHTBULBS ?

THE NECESSARY STEPS OF INFERENCE STATISTICS

1. SPECIFY THE QUESTIONS TO BE ANSWERED & IDENTIFY THE POPULATION OF INTEREST.
 - BE SPECIFIC!
 - SAMPLE SHOULD BE REPRESENTATIVE OF THIS POPULATION
2. DECIDE HOW TO SELECT THE SAMPLE
(i.e. DESIGN OF THE EXPERIMENT, SAMPLING PROCEDURE)
3. SELECT SAMPLE & ANALYZE SAMPLE INFORMATION
MANY METHODS
4. USE INFO FROM STEP 3 TO MAKE INFERENCE ABOUT POPULATION
MANY METHODS
5. DETERMINE THE RELIABILITY OF THE INFERENCE.

e.g. IS THE POLL'S PREDICTIONS ACCURATE TO $\pm 1\%$, $\pm 5\%$, $\pm 10\%$?

HOW MUCH CONFIDENCE DO YOU HAVE IN YOUR INFERENCE?

(WE WILL SEE WAYS OF MEASURING THIS.)