

WHAT TO KNOW FOR STAT 2000 EXAM 1 FALL 2015 (FRANKEL AND FRIEDMAN)

INTRODUCTION BASIC IDEAS:

SAMPLE vs POPULATION, STATISTIC (ESTIMATE) vs PARAMETER

STATISTICAL INFERENCE

DATA TYPES AND LEVELS: CATEGORICAL NOMINAL ORDINAL NUMERICAL DISCRETE, CONTINUOUS, INTERVAL, RATIO

KNOW WHAT TYPE OF SUMMARY/GRAPHS are APPROPRIATE FOR EACH TYPE INCLUDING CONTINGENCY TABLE, SCATTER DIAGRAM

TYPES OF SAMPLES: PROBABILITY vs NON-PROBABILITY, JUDGEMENT, SIMPLE RANDOM (with and without replacement), STRATIFIED, CLUSTERED.

KNOW ABOUT A TABLE OF RANDOM NUMBERS. HOW TO USE TO PICK SAMPLE

SUMMARY ANALYSIS:

CATEGORICAL (NOMINAL): FREQUENCY TABLE, CONTINGENCY TABLE, PARETO CHART, PIE CHART, BAR CHART

SUMMARY ANALYSIS NUMERICAL (DISCRETE, CONTINUOUS), INTERVAL, RATIO

MEAN, MEDIAN, MODE, RANGE, STANDARD DEVIATION, VARIANCE, COEFFICIENT OF VARIATION, Z VALUE (know how to compute or solve for), PERCENTILES, FIRST QUARTILE, THIRD QUARTILE, AND INTERQUARTILE RANGE.

KNOW HOW MEAN DIFFERS FROM MEDIAN, INTERQUARTILE RANGE vs STANDARD DEVIATION

SHAPE OF DISTRIBUTION, SYMMETRICAL, SKEWED RIGHT, SKEWED LEFT

FREQUENCY DISTRIBUTIONS FOR NUMERICAL DATA (FREQUENCY, PERCENTAGE FREQUENCY, COMULATIVE FREQUENCY, CUMULATIVE PERCENAGE FREQUENCY, HISTOGRAM, FREQUENCY POLYGON, CUMULATIVE FREQUENCY POLYGON (aka OGIVE)

PROBABILITY

EVENTS, MUTUALLY EXCLUSIVE, MUTUALLY EXHAUSTIVE

BASIC PROBABILITY SIMPLE or MARGINAL $P(A)$, $P(B)$

PROBABILITY WITH OR $P(A \text{ or } B)$

PROBABILITY WITH AND $P(A \text{ and } B)$

CONDITIONAL PROBABILITY $P(A|B)$

KNOW HOW TO DETERMINE INDEPENDENCE OR DEPENDENCE

FROM FORMULA DEFINITIONS

KNOW HOW TO WORK WITH PROBABILITIES USING CONTINGENCY TABLE (PERHAPS FROM WORD PROBLEM) and FORMULAS (SEE HAND-OUT SHEET)

EXPECTED VALUE WITH VARIABLES OR DOLLARS.

KNOW HOW MUCH IS FAIR PAYMENT FOR A GAME WITH VARIOUS PAYOFFS and ASSOCIATED PROBABILITIES

NORMAL DISTRIBUTION: GIVEN INFORMATION ABOUT THE MEAN AND VARIANCE OF A NORMAL DISTRIBUTION BE ABLE TO ANSWER QUESTIONS ABOUT THE PROBABILITY OF FALLING WITH CERTAIN RANGES, OR ABOVE A CERTAIN VALUE OR BELOW A CERTAIN VALUE. ALSO KNOW HOW TO DETERMINE THE VALUE OF A CERTAIN PERCENTILE AND KNOW WHAT MEANS SO YOU CAN SOLVE A WORD PROBLEM.