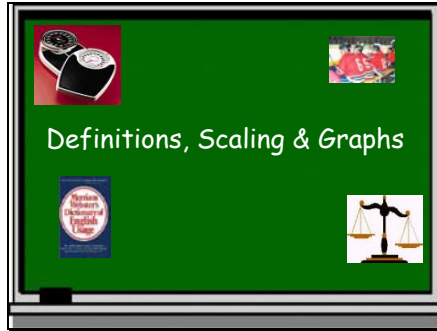
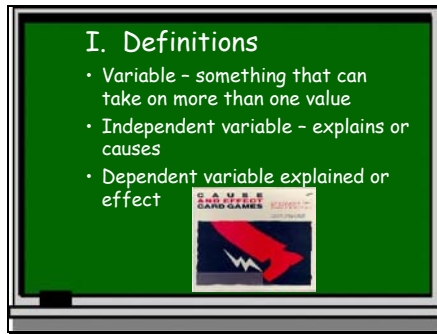


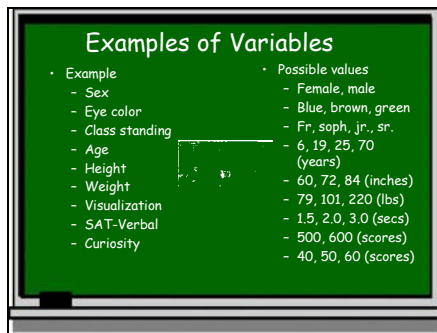
Slide 1



Slide 2




Slide 3



Slide 4


Example Scenarios (1)

- Student volunteers given 'study drug.' Half get mild caffeine, half get saline (nobody knows who gets what). Both take same exam next day.
- Pilots use microcomputer to train communication skills. Half get to talk to simulated air traffic control while flying micro. Other half plays asteroids. All then fly full motion sim.



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Example Scenarios (2)




- Study to determine whether SAT verbal scores predict freshman GPAs. Collect SAT scores from entering freshmen, collect GPA at end of first year.

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Continuous vs. Discrete VbIs (Important in math/stat)


• Continuous (real)	• Discrete (integer)
• Infinitely divisible	• Only whole numbers
- Time (secs)	- Number of siblings
- Weight (lbs)	- Number of errors in a test
- Height (inches)	- Number of bar presses



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**Continuous vs. Nominal Vbls
(Important in Psychology)**

- Continuous
 - Many valued, ordered
 - Age
 - Weight
 - Number of sibs
 - Test score (# right)
- Nominal (in name only)
 - Categorical, label
 - Sex
 - Eye color
 - Major
 - Political party



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Review Types of Variables

- Independent
- Dependent
- Continuous vs. Discrete
- Continuous vs. Nominal

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Population, Parameter, Sample & Statistic


- Population - the complete collection; everyone of interest (adults in U.S.; students at USF)
- Sample - a subset of the population (students at USF are a sample of adults in U.S.; student in this class are a sample of students at USF). We usually do research with a sample. Quick and cheap. Using the population is too costly.



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Parameter & Statistic

- Parameter - a numerical summary of the population (average age of students at USF if students at USF is the population).
- Statistic - a numerical summary of a sample (average age of students in this class if students at USF is the population).
- Sample statistics are used to estimate population parameters.



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Review Definitions

- Population
- Sample
- Parameter
- Statistic

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2. Scale Types


- There are 4 main scale types: nominal, ordinal, interval and ratio.
- Nominal is used for categories (hockey numbers, classroom numbers, SSN, area codes, DSMIII: 303 intox; 307 stuttering).



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Ordinal - rank order, e.g., Moh's scale of rock hardness


- (1) Talc
- (2) Gypsum
- (3) Calcite
- (4) Fluorite
- (5) Apatite
- (6) Orthoclase
- (7) Quartz
- (8) Topaz
- (9) Corundum
- (10) Diamond



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Interval & Ratio scales

- Interval - order and interval (difference between numbers) have meaning. (Celsius and Fahrenheit temperature scales.) $100 - 75 = 75 - 50 = 25$ degrees. Cannot say 50 is 2X as hot as 25. Many psychological scales thought to be interval (e.g., SAT, IQ).
- Ratio - order, interval and ratio have meaning (Kelvin scale, reaction time). There is a meaningful zero point in a ratio scale.



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Scale Types: Footrace review

Nominal	Ordinal	Interval	Ratio
ID number	Rank order of finish	Time of day of finish	Elapsed time from start
043	1	10:57 a.m.	4 min
011	2	10:59 a.m.	6 min
136	3	11:01 a.m.	8 min
112	4	11:02 a.m.	9 min
086	5	11:04 a.m.	11 min

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3. Graphing

- The Frequency Distribution
 - Simple tally of the number of people at various scores or intervals
 - Ungrouped or raw frequency distribution shows all the data (the number of 1s, 2s, 3s etc.)
 - Grouped frequency distribution shows frequencies for intervals of data (the number within the interval 1-3, 4-6, etc.)

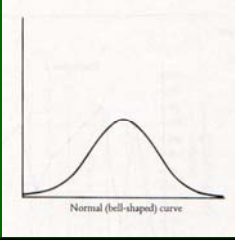
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Distribution Shape

- Mean (Central Tendency)
- Standard Deviation (Spread)
- Skew (tails)
- Kurtosis (shoulders)
- Odd shapes

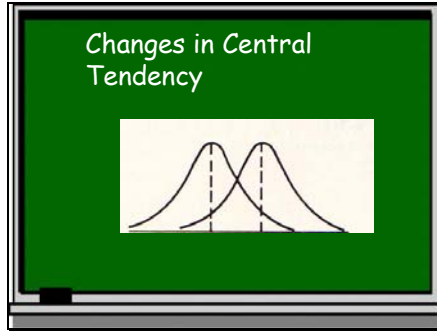
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The Normal Curve

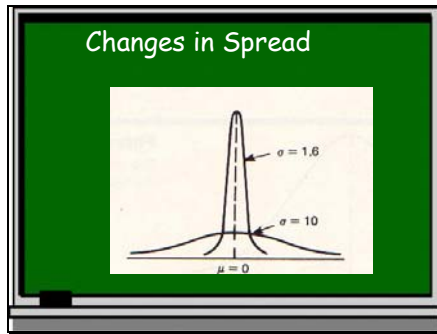


Normal (bell-shaped) curve

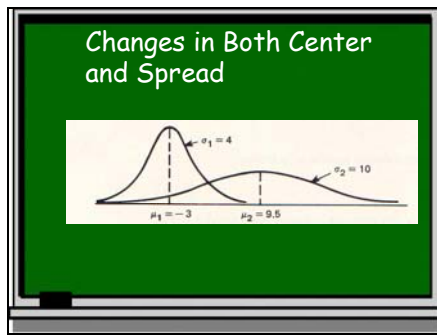
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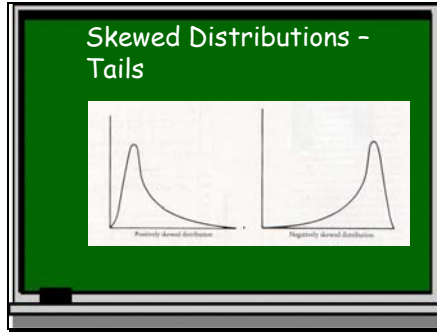
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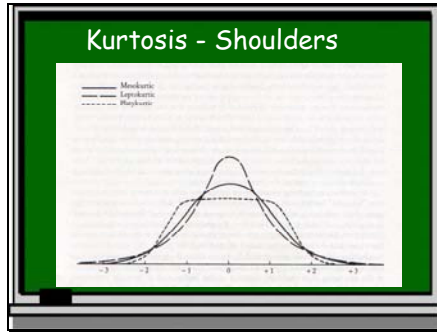
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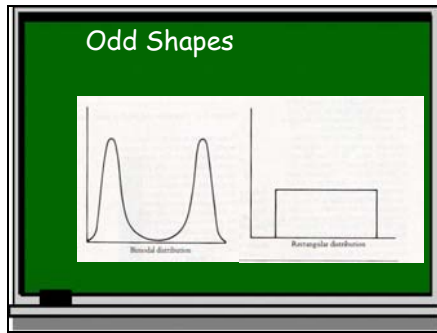
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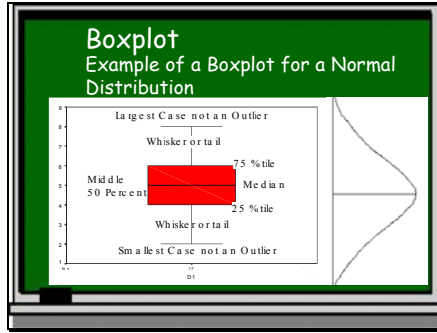
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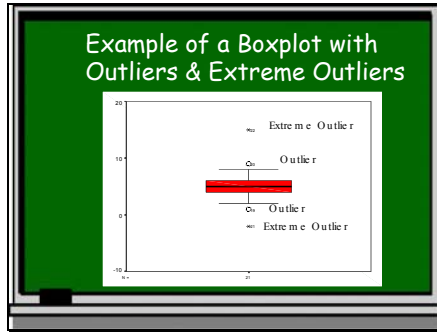
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