

A PRE-STATS BRIDGING COURSE:

Consider a new pre-statistics bridging course – a course taken before the first course on statistical inference. This bridging course excludes hypothesis tests, confidence intervals, sampling distributions and the binomial distribution.

This bridging course covers descriptive statistics and statistical modeling. The focus is on statistical association, probabilistic causation and their relationship.

The purpose of this survey is to identify the content for this course – not the pedagogy or the technical tools involved.

THE EVALUATION:

Given *the goals of this course*, evaluate the importance of various topics on a letter scale

- (a) Most important Conceptually critical.
- (b) Quite important: Fundamental, useful, and important. Good building block.
- (c) Moderately important: Elective topic.
- (d) Not very important. Could easily be omitted; not very relevant, useful or understandable.
- (e) Do not include. Not relevant, useful, valuable or intelligible at this level.
- (f) Topic is unfamiliar, ambiguous, or unintelligible to the reviewer.

THE RESULTS: Please return a copy of your survey to Milo Schield

- 1. in person,
- 2. by mail [Mail to Dept. of Business Administration, Augsburg College, Mpls, MN 55454],
- 3. by fax [Fax to 612: 330-1607], or
- 4. by email. [Key in your answers and send to schild@augsborg.edu]

Add any topics that you think should have been included:

1. ___ Philosophy of Science 2. ___ inference: generalize, predict, etc. 3. ___ association vs. causation 4. ___ causes: determinate / probabilistic 5. ___ common cause (lurking variable) 6. ___ fishbone (causal) diagrams 7. ___ Foundations of statistics 8. ___ experiment vs. observational study 9. ___ natural experiments 10. ___ study: cross-sectional/longitudinal 11. ___ study: prospective vs. retrospective 12. ___ control group (controlled study) 13. ___ control for (take account of) 14. ___ matching, test-retest 15. ___ placebo and placebo effect 16. ___ Hawthorne & halo effects 17. ___ single and double blind studies 18. ___ random assignment 19. ___ population vs. sample 20. ___ parameter vs. statistic 21. ___ random error (sampling error) 22. ___ bias : measurement error, etc. 23. ___ confounding: spurious association 24. ___ representative sampling/sample 25. ___ random sampling/sample 26. ___ data types: quality vs. quantity 27. ___ constructs (psych., sociology, etc.) 28. ___ reliability versus validity 29. ___ Reading count-based data 30. ___ exclusive and exhaustive 31. ___ intersection and union 32. ___ forming comparisons 33. ___ reading and comparing counts 34. ___ describing part-whole percentages 35. ___ creating percentages from counts 36. ___ comparing percentages 37. ___ risk and relative risk 38. ___ odds and odds ratio 39. ___ reading and comparing rates 40. ___ Interpret rates, percents, counts 41. ___ risk as a measure of association 42. ___ percentage attributable to 43. ___ Simpson paradox; ecological fallacy 44. ___ Bayes' Rule and medical tests 45. ___ prosecutors fallacy 46. ___ over-involvement ratios	47. ___ Read/interpret quantitative data 48. ___ frequency distribution 49. ___ bar charts, histograms 50. ___ shape: symmetric/asymmetric/skew 51. ___ percentiles: calculate/compare 52. ___ mean and median 53. ___ mode and mid-range 54. ___ mid-interquartile range 55. ___ geometric mean 56. ___ minimum, maximum and range 57. ___ mean absolute deviation 58. ___ variance 59. ___ standard deviation 60. ___ coefficient of variation: stdev/mean 61. ___ inter-quartile range (IQR) 62. ___ skewness: $3 * (\text{mean} - \text{median}) / \text{stdev}$. 63. ___ standard deviation of binary data 64. ___ outlier and trimmed mean 65. ___ normalizing (z scores) 66. ___ standardizing to new mean & StdDev 67. ___ bell-shaped distribution: 1/2/3 rule 68. ___ prediction interval 69. ___ median overlap 70. ___ algebraic models of table data 71. ___ Normal distribution 72. ___ Log-normal & exponential 73. ___ Plots: quantile and quantile-normal 74. ___ Simple least-squares regression 75. ___ correlation 76. ___ slope of regression 77. ___ $b = r * (s_{\text{sub-y}}) / (s_{\text{sub-x}})$ 78. ___ $s_{\text{y-hat}} = s_y * \sqrt{1 - r^2}$ 79. ___ Prediction and prediction interval 80. ___ R^2 (explanatory power of a model) 81. ___ regression to the mean (test/retest) 82. ___ Multivariate Analysis (& Misc) 83. ___ partial correlation & partial slope 84. ___ stepwise least-squares regression 85. ___ logistic regression 86. ___ Plot: Chance vs. Z, 2 factors (Bell Curve) 87. ___ cluster analysis 88. ___ discriminant analysis 89. ___ quality/reliability analysis 90. ___ read/interpret longitudinal graphs 91. ___ read/interpret cross-sectional graphs 92. ___ read/interpret news stories with stats.
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