Math 110S Topical Outline
Approved April 2015

Topics from Statway version 2.8 (or SACWay 2.0 as noted)	Statway/SACWay Lessons	Hours
Fundamentals of Research (Review): Data and data types, representative samples and bias, observational and experimental studies, descriptive statistics for single variable data.	Review	1.5
Bivariate Quantitative Data: Correlation, interpreting r, interpreting slope and intercept of the line of best fit, residuals, measuring fit with residuals and $r^2 = \frac{SSE}{SST}$. What it means for the line of best fit to be a *least-squares* line.	3.1.1 – 3.3.1	12
Bivariate Categorical Data: Estimating probability with relative frequencies, two-way tables, marginal, joint, and conditional probabilities.	5.1.1 – 5.1.3	4.5
Probability distributions – Discrete and Continuous: the law of large numbers, probability rules, discrete and continuous random variables, probability distributions, Z-scores and normal distributions, the standard normal distribution.	6.1.1 – 6.2.3	9
Distributions of Sample Proportions, the Central Limit Theorem for Sample Proportions, Sampling Distributions of Sample Proportions, Introduction to Confidence Intervals and Reasoning with Sample Proportions.	7.1.1 – 7.2.2	7
Inferences for One Proportion: Confidence Intervals and Hypothesis Tests, Interpreting results, Type I and II Errors	8.1.1 – 8.3.2	9
Inferences for Two Proportions: Sampling Distributions of Differences between Two Proportions, Hypothesis Tests, Interpreting results, Type I and II Errors	9.1.1, 9.1.2, 9.3.1, 9.3.2	6
Inferences for One and Two Means: Sampling Distributions of Sample Means and Differences Between Sample Means, the *t*-Distribution, Confidence Intervals for a Population Mean, Hypothesis Tests for One or Two Population Means (omit two mean difference intervals in 10.4.1).	10.1.1, 10.1.2, 10.2.1, 10.2.2, 10.3.1, 10.3.2, 10.4.1	10
Goodness of Fit Tests: Multinomial Experiments, One and Two-Way Chi-Square Tests	11.1 – 11.2 (SACWay Lessons)	3
Inferences in Linear Correlation: Testing for Linear Correlation with a *t*-Test.	12.1 (SACWay)	1.5
One Way Analysis of Variance: The F-Distribution and One-Way ANOVA for Equal Sample Sizes	13.1 (SACWay)	1.5

Submitted by the Math 110S Committee

One hour = 1 hour of face time. This outline allows for 5 hours of exams.
16 Week Term: 1 week = 4.6667 hours (face time) 6 Week Term: 1 week = 12.5 hours (face time) .