Elementary Statistics Curriculm Map

SUNY Ulster Course Objective	Alignment with Elementary Statistics Textbook (chapter & section)	Alignment with Common Core Standards	Lesson with TI-83/84 Graphing Calculator Applications/Functions
1. Explain the difference between a population & a sample (parameter & statistic)	1.1-1.4	S-IC-1, S-IC-2, S-IC-3,	
2. Given a data set (or the high data point and low data point), construct classes for a frequency table and given frequencies	2.2	S-ID-1, S-ID-5	
3. Convert a frequency table into a relative frequency table and a cumulative frequency table	2.2	S-ID-1, S-ID-5	
4. Construct the following graphs: --histogram—frequency polygram—ogive	2.3-2.4	S-ID-1, S-ID-5	
5. Calculate and interpret averages (mean, median, mode, midrange)	3.2	S-ID-2	Yes
6. Calculate and interpret measures of dispersion (range, variance, and standard deviation)	3.3	S-ID-2	Yes
7. Apply the empirical rule to the normal distribution (Chebyshev's theorem)	3.3	S-ID-3	
8. Calculate and interpret measures of position, z score, percentile, deciles, quantities (most important is z score)	3.4	S-ID-3	Yes
9. Calculate probability using either the classical or empirical model of probability	4.2	S-CP-1, S-CP-2	
10. Know when and how to apply the following: addition rule—multiplication rule—complements	4.3-4.5	S-CP-1, S-CP-2, S-CP-3, S-CP-6, S-CP-7, S-CP-8	
11. Know how to convert from probability to odds (optional as time permits)	4.2	S-MD-5	
12. Be able to apply the multiplication rule, permutation and combination rule for counting (optional as time permits)	4.6	S-CP-9	Yes

13. Know what a random variable is and be able to construct a probability distribution for a discrete random variable	5.2	S-MD-1	
14. Know the fundamentals of a probability distribution model and interpret its table, formula, and graph	5.2	S-MD-3, S-MD-4	
15. Calculate the mean, variance, and standard deviation for a given probability distribution of a discrete random variable	5.2	S-MD-3, S-MD-4, S-MD-6, S-MD-7	(could be used)
16. Calculate and interpret mathematical expectation and relate it to the mean	5.2	S-MD-2, S-MD-4, S-MD-5	(could be used)
17. Know when they have a binomial experiment and how to use the binomial distribution (formula and table)	5.3	S-MD-1, S-MD-3, S-MD-4	Yes
18. Calculate the mean, variance, and standard deviation of a binomial distribution	5.4	S-MD-3, S-MD-4, S-MD-6, S-MD-7	(could be used)
19. Apply the standard normal table for probabilities	6.1-6.2	S-ID-4	Yes
20. Calculate the z score for nonstandard normal and find probabilities	6.3	S-ID-4	Yes
21. Find scores given probabilities and percentages	6.2-6.3	S-ID-4	Yes
22. Use the normal to approximate the binomial	6.7	S-ID-4	(could be used)
23. Understand and apply the Central limit theorem	6.5	S-ID-4	(could be used)
24. Construct a confidence interval for mean when $n > 30$ and the t-distribution for $n < 30$	7.3	S-ID-4, S-IC-4	(could be used)
25. Estimate the sample size needed to ensure a given maximum, acceptable error in the mean	7.3	S-ID-4, S-IC-4	
26. Construct a confidence interval for the population based on the sample proportion	7.2	S-ID-4, S-IC-4	(could be used)

27. Estimate the sample size needed to ensure a given maximum acceptable error in the proportion	7.2	S-ID-4, S-IC-4	
28. Test a claim about the mean and draw the proper conclusion	8.4	S-ID-4, S-IC-4	
29. Test a claim about the population proportion and draw the proper conclusion	8.2-8.3	S-ID-4, S-IC-4	
30. Use the chi-square distribution to test a claim about the standard deviation or variance and draw the proper conclusion	7.4, 8.5	S-ID-4, S-IC-4	(could be used)
31. Construct a scatter diagram	10.2	S-ID-6, S-ID-7	Yes
32. Calculate and interpret the correlation coefficient r	10.2	S-ID-8, S-ID-9	Yes
33. Calculate the regression line formula	10.3	S-ID-6	Yes
34. Use the regression line formula when appropriate for predictions	10.3-10.4	S-ID-6	Yes
35. Use the chi-square distribution nonparametric hypotheses testing for claimed percentages in a multi-nominal experiment (optional as time permits)	11.2	S-ID-4, S-IC-3	
36. Use the chi-square distribution for nonparametric hypotheses testing for a claimed independence, given a contingency table (optional as time permits)	11.3	S-ID-4, S-IC-3	