

Montgomery County Community College
MAT 130
Probability and Statistics

within each typology.	The Use of TI 84 Graphics calculator	Projects
3. Explain construct and data organization related to frequency tables and statistical graphs including histograms, frequency polygons, ogives, stem and leaf plots and box plots.	Lectures Small Group Discussions and/or Projects The Use of TI 84 Graphics calculator	Exams Quizzes Homework Projects
4. Explain probability solutions using basic probability theory, terminology, notation, the addition and multiplication rules, and complementary events.	Lectures Small Group Discussions and/or Projects The Use of TI 84 Graphics calculator	Exams Quizzes Homework Projects
5. Define probability distribution and random variables.	Lectures Small Group Discussions and/or Projects The Use of TI 84 Graphics calculator	Exams Quizzes Homework Projects
6. Calculate the mean, variance, and solutions to problems involving discrete random variables based on the binomial and Poisson probability distributions.	Lectures Small Group Discussions and/or Projects The Use of TI 84 Graphics calculator	Exams Quizzes Homework Projects
7. Calculate the solutions to problems involving continuous random variables based on the normal, uniform, and exponential probability distributions.	Lectures Small Group Discussions and/or Projects The Use of TI 84 Graphics calculator	Exams Quizzes Homework Projects
8. Use appropriate terminology and sampling distribution notation to explain the application of the Central Limit Theorem.	Lectures Small Group Discussions and/or Projects The Use of TI 84 Graphics calculator	Exams Quizzes Homework Projects

LEARNING OUTCOMES	LEARNING ACTIVITIES	EVALUATION METHODS
9. Use appropriate terminology and notation to explain a hypothesis test and its p-value about a mean or a proportion.	Lectures Small Group Discussions and/or Projects The Use of TI 84 Graphics calculator	Exams Quizzes Homework Projects
10. Perform two-sample hypothesis tests for the population mean and for the difference between two population means.	Lectures Small Group Discussions and/or Projects The Use of TI 84 Graphics calculator	Exams Quizzes Homework Projects
11. Use appropriate terminology and notation to explain the determination of a point estimate and confidence interval estimates for a mean or a proportion.	Lectures Small Group Discussions and/or Projects The Use of TI 84 Graphics calculator	Exams Quizzes Homework Projects
12. Determine minimum sample sizes for a desired level of confidence and margin of error.	Lectures Small Group Discussions and/or Projects The Use of TI 84 Graphics calculator	Exams Quizzes Homework Projects
13. Test for the significance of a calculated correlation coefficient.	Lectures Small Group Discussions and/or Projects The Use of TI 84 Graphics calculator	Exams Quizzes Homework Projects
14. Use a calculated equation for a regression line for prediction.	Lectures Small Group Discussions and/or Projects The Use of TI 84 Graphics calculator	Exams Quizzes Homework Projects
15. Perform χ^2 tests for goodness-of-fit, independence, or homogeneity.	Lectures Small Group Discussions and/or Projects The Use of TI 84 Graphics calculator	Exams Quizzes Homework Projects

11. Discrete Random Variables; Binomial Distribution and Poisson distributions
12. Mean, Standard Deviation for Binomial and Poisson distributions
13. Standard Normal Distribution
14. Continuous Random Variables; Normal, uniform and exponential distributions
15. Sampling Distribution and Estimation
16. Central Limit Theorem
17. Estimating Population Proportions
18. Estimating Population Means: Known
19. Estimating Population Means: Not Known
20. Basics of Hypothesis Testing
21. Hypothesis Testing: Proportions
22. Hypothesis Testing: Mean Known
23. Hypothesis Testing: Mean Not Known
24. Hypothesis Testing: Two sample for the population mean.
25. Hypothesis Testing: Difference between two population means
26. Analysis of Variance
27. Multinomial Experiments: Goodness-of-Fit
28. Contingency Tables
29. Correlation
30. Regression
31. Multiple Regression

LEARNING MATERIALS:

Introductory Statistics, 2013 Edition by Barbara Illowsky and Susan Dean, OpenStax College Publishing

Calculator:

TI-84 (Plus or Silver Edition) Graphics Calculator. If a student has a TI-83+, they do not nss

was developed, approved and will be delivered in full compliance with the policies and procedures established by the College.