*Approved: Nov 2023 Effective: Fall 2024*

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| **MATERIAL TO BE COVERED** | **SECTIONS**  **FROM TEXT** | **TIME LINE** |
| Introduction to statistics - descriptive statistics: summarizing data,  graphing, averages, dispersion statistics, and measures of relative position. (Optional: Data Exploration - skewness, kurtosis, boxplots)  **Support Material for Introduction to Statistics:**  additional support for descriptive statistics: summarizing data, graphing, averages, dispersion statistics, and measures of relative position. (Optional: Data Exploration - skewness, kurtosis, boxplots) | Chapter 1 & 2.1,  2.3 – 2.6 | 5.5 Hours  Support:  4.3  Hours |
| **Probability**: probability fundamentals, addition rule, multiplication rule, complements.  **Support Material for Probability**: additional support for probability fundamentals, addition rule, multiplication rule, complements. | 3.1 - 3.2 | 4 Hours  Support  2.6  Hours |
| **Discrete probability distributions**: discrete random variables, mean,  variance and expected value. Properties of expected value and variance. Binomial random variable. (Optional: Moments, skewness, kurtosis for a discrete random variable, the Poisson random variable.)  **Support Material for Discrete Probability Distributions**: additional support for discrete random variables, mean, variance and expected value. Properties of expected value and variance. Binomial random variable. (Optional: Moments, skewness, kurtosis for a discrete random variable, the Poisson random variable.) | 4.1 & 4.4  Optional: 4.2 & 4.3 | 4 Hours  Support  2.6  Hours |
| Continuous Random variables: uniform, non-standard and standard normal probability distributions. Finding scores when given probabilities.  **Support Material for Normal Distribution**: additional support for uniform, non-standard and standard normal probability distributions. Finding scores when given probabilities. | 5.1 - 5.3 | 4 Hours  Support  2.6  Hours |
| **Sampling distributions, estimation, and sample size for sample**  **proportions and sample means**: The normal approximation of the  binomial distribution. Estimation of population mean and proportion through confidence intervals, sample size and error.  **Support material for sampling distributions, estimation, and sample size for sample proportions and sample means**: Additoinal support for the normal approximation of the binomial distribution. Estimation of population mean and proportion through confidence intervals, sample size and error. | 6.1 - 6.6 | 4 Hours  Support:  2.6  Hours |
| **Hypothesis testing (single parameter):** hypothesis tests for means, proportions, and mean difference (with matched-pair samples) using the p-value approach and the critical value approach with *z*- and *t*-distributions.  **Support material for hypothesis testing (single parameter):** additional support for hypothesis tests for means, proportions, and mean  difference (with matched-pair samples) using the p-value approach and  the critical value approach with *z*- and *t*-distributions. | 7.1 - 7.5 | 5 Hours  Support  4.4  Hours |
| **Hypothesis testing (two parameters)**: hypothesis tests comparing two means using independent samples, comparing two proportions. (Optional: confidence intervals for differences between parameters.)  **Support material for hypothesis testing (two parameters)**: additional support for hypothesis tests comparing two means using independent samples, comparing two proportions. (Optional: confidence intervals for differences between parameters.) | 8.1 - 8.3  Optional: 8.4 | 4 Hours  Support:  4.3  Hours |
| **Correlation and regression**: linear correlation, linear regression.  correlation inferences. Testing for Normality.  **Support material for correlation and regression**: additional support for linear correlation, linear regression, correlation inferences, testing for Normality. | 9.1, 9.3 & 9.4 | 3 Hours  Support:  1.7  Hours |
| **Applications of Chi square distributions**: goodness of fit, multinomial experiments, contingency tables.  **Support material for applications of Chi square distributions**: additinoal support for goodness of fit, multinomial experiments, contingency tables. | 10.1 - 10.2 | 2.5 Hours  Support:  1.7  Hours |
| **Analysis of variance**: one-way ANOVA with equal and unequal sample sizes.  **Support material for analysis of variance**: additional support for one-way ANOVA with equal and unequal sample sizes. | 11.1 | 2.5 Hours  Support:  1.7  Hours |
| Optional: Nonparametric tests. | Optional Chapter 12 |  |

All hours listed are face-time; i.e. breaks are administered by the instructor separately and are in addition to the hours listed.

2-unit class: hours total 30 (15 x 2 hours) 0 hours subtracted for exams

3-unit class: hours total 42.5 (15 x 2 hours 50 minutes) – 4 hours for exams + 2.5 hour final hour

Math 110: The outline allows for 4 hours of exams excluding the 2.5 final exam

Math 11: The outline does not include time for exams. Exams in the support course are at the discretion of

the professor.

Math 11 is a 15-week course. The corequisite course does not meet during finals week.

Corequiste courses are Pass/No Pass grading.

NOTE:

The course will include an introduction to the use of computers in statistics. Instructors are encouraged, where practical, to incorporate computer demonstrations and computer assignments in their courses. Between 10% and 15% of the course grade should be based on the students' ability to appropriately use computer software, interpret the results and turn in homework. The software used in the class will be determined by the instructor.

Submitted by: Lancaster, Chavez, Dewilde, Troxell, Case, Guth, Kim, Chan, Pyle, Kirchgraber, Wohlgezogen

Math Department Policy can be found at: <https://www.mtsac.edu/math/departmentpolicy.html>