

7. Construct a frequency table, histogram, pie chart, bar graph, line graph, stem and leaf plot, and box and whisker plot
8. Read statistical graphs and use the graphs to analyze data
9. Calculate measures of location or center (mean, median and mode) and determine which is most appropriate in particular circumstances
10. Calculate measures of dispersion or spread (range, variance and standard deviation)
11. Calculate measures of relative position (percentiles, quartiles and standard scores)
12. Determine if an observation is an outlier
13. Use the Empirical Rule and Chebyshev's Theorem to determine proportions of the data that fall in a particular range
14. Construct a scatterplot from bivariate data
15. Determine the nature of a linear relationship from a scatterplot (negative, positive, weak, strong)
16. Calculate the Pearson correlation coefficient
17. Determine the sample space of a probability experiment
18. Calculate probabilities using the classical rules of probability
19. Calculate empirical probabilities
20. Construct and use probability distributions of discrete random variables
21. Calculate probabilities for binomial random variables
22. Calculate means, variances and standard deviations of discrete random variables
23. Find areas under the standard normal distribution
24. Calculate probabilities using the normal distribution
25. Find z-values for given areas under the standard normal curve
26. Use the Central Limit Theorem to estimate the mean and standard deviation of a sampling distribution of sample means and sample proportions
27. Calculate probabilities for sample means
28. Calculate probabilities for sample proportions
29. Use a normal distribution to approximate the binomial distribution
30. Find a confidence interval for a population mean using the z-distribution
31. Find t-values for given areas under the Student t-distribution
32. Find a confidence interval for a population mean using the t-distribution
33. Find a confidence interval for a population proportion
34. Find the sample size needed for a particular margin of error (for means and proportions)
35. Write a complete, concise interpretation for a confidence interval using standard English
36. Perform tests for significance (hypothesis tests) for population means and proportions using the P-value and rejection regions with z- and t-critical values as appropriate
37. Calculate the coefficient of determination for bivariate data (r-square)
38. Write a complete, concise interpretation of the coefficient of determination in standard English
39. Calculate the coefficients in the least squares regression line.
40. Write a complete interpretation of the slope of a regression equation in Standard English
41. Calculate the variance of the slope and the variance of errors for regression.
42. Perform a hypothesis test for the slope of a regression equation.

43. Write a complete, concise conclusion for a hypothesis test for a given significance level using standard English
44. Use Microsoft Excel to do statistical calculations and construct statistical graphs

IV. **Instructional Methods**

The instructional procedures will include lectures, discussions, problem sessions, in class work, homework, reviews and tests.

V. **Instructional Materials**

- **Textbook:** Discovering Business Statistics, Nottingham/Hawkes. 2013 Hawkes Learning Systems/Quant Systems, Inc. REQUIRED
- **Software:** Hawkes Learning Systems Courseware: Discovering Business Statistics. This software comes bundled with new books purchased at the bookstore. ISBN (for bundle): 9781-935782-88-9. REQUIRED

Microsoft Excel which is available on all NRCC computers.

- **Calculator:** A calculator is REQUIRED. A scientific calculator is recommended. A graphing calculator *will not be permitted on tests or quizzes*.
- Note paper, graph paper, pencils etc. Submitted work should be neat, legible and preferably written in pencil.

VI. **Course Content**

- Populations, parameters, samples and statistics
- Statistical graphs
- Probability and probability distributions
- Sampling distributions
- Estimation of parameters
- Hypothesis tests for parameters
- Regression

VII. **Evaluation**

The grade for the course will be calculated from Tests, Hawkes Learning Systems homework, a final exam and other work as deemed appropriate by the instructor. See individual syllabus for details on percentages/points.

VIII. **Attendance**

Regular attendance at classes is required. When absence from a class becomes necessary, it is the responsibility of the student to inform the instructor prior to the absence whenever possible. The student is responsible for the subsequent completion of all study missed during an absence. Any instruction missed and not subsequently completed will necessarily affect the grade of the student regardless of the reason for the absence.

IX. Cheating Policy

The giving or receiving of any help from another student or unauthorized individual on any graded portion of the course is considered cheating and will not be tolerated. The use of books, notes, electronic devices or any other unauthorized material during tests is considered cheating, and will not be tolerated. Any student found cheating will receive a grade of “0” on that assignment and may receive an “F” for the course. This “0” cannot be replaced by any other score. Mobile phones are not permitted to be used as calculators.

X. Withdrawal Policy

Student Initiated Withdrawal Policy

A student may drop or withdraw from a class without academic penalty during the first 60 percent of a session. For purposes of enrollment reporting, the following procedures apply:

- a. If a student withdraws from a class prior to the termination of the add/drop period for the session, the student will be removed from the class roll and no grade will be awarded.
- b. After the add/drop period, but prior to completion of 60 percent of a session, a student who withdraws from a class will be assigned a grade of “W.” A grade of “W” implies that the student was making satisfactory progress in the class at the time of withdrawal, that the withdrawal was officially made before the deadline published in the college calendar, or that the student was administratively transferred to a different program.
- c. After that time, if a student withdraws from a class, a grade of “F” or “U” will be assigned. Exceptions to this policy may be made under documented mitigating circumstances if the student was passing the course at the last date of attendance.

A retroactive grade of “W” may be awarded only if the student would have been eligible under the previously stated policy to receive a “W” on the last date of class attendance. The last date of attendance for a distance education course will be the last date that work was submitted.

Late withdrawal appeals will be reviewed and a decision made by the Director of Student Services.

No-Show Policy

A student must either attend face-to-face courses or demonstrate participation in distance learning courses by the last date to drop for a refund. A student who does not meet this deadline will be reported to the Admissions and Records Office and will be withdrawn as a no-show student. No refund will be applicable, and the student will not be allowed to attend/participate in the class or submit assignments. Failure to attend or participate in a course will adversely impact a student’s financial aid award.

Instructor Initiated Withdrawal

A student who adds a class or registers after the first day of class is counted absent from all class meetings missed. Each instructor is responsible for keeping a record of student attendance (face-to-face classes) or performance/participation (DE classes) in each class throughout the semester.

When a student's absences equal twice the number of weekly meetings of a class (equivalent amount of time for summer session), the student may be dropped for unsatisfactory attendance in the class by the instructor.

Since attendance is not a valid measurement for Distance Education (DE) courses, a student may be withdrawn due to non-performance. A student should refer to his/her DE course plan for the instructor's policy.

In accordance with the No-Show Policy, a student who has not attended class or requested/accessed distance learning materials by the last day to drop the class and receive a refund must be withdrawn by the instructor during the following week. No refund will be applicable.

When an instructor withdraws a student for unsatisfactory attendance (face-to-face class) or non-performance (DE class), the last date of attendance/participation will be documented. Withdrawal must be completed within five days of a student's meeting the withdrawal criteria. A grade of "W" will be recorded during the first sixty percent (60%) period of a course. A student withdrawn after the sixty percent (60%) period will receive a grade of "F" or "U" except under documented mitigating circumstances when a letter of appeal has been submitted by the student. A copy of this documentation must be placed in the student's academic file.

The student will be notified of the withdrawal by the Admissions and Records Office. An appeal of reinstatement into the class may be approved only by the instructor.

XI. Disability and Diversity Statements

If you are a student with a documented disability who will require accommodation in this course, please register with the Disability Services Office located in the Counseling Center for assistance in developing a plan to address your academic needs.

The NRCC community values the pluralistic nature of our society. We recognize diversity including, but not limited to, race ethnicity, religion, culture, social class, age, gender, sexual orientation and physical or mental capability. We respect the variety of ideas, experiences and practices that such diversity entails. It is our commitment to ensure equal opportunity and to sustain a climate of civility for all who work or study at NRCC or who otherwise participate in the life of the college.