Course Description

An introduction to basic concepts and formulas for both descriptive and inferential statistics. Topics include the nature of data, uses and abuses of statistics, methods of sampling, summarizing data, pictures of data, counting techniques, measures of central tendency, measures of variation, measures of position, understanding probability, binomial and normal distributions, central limit theorem, confidence intervals, fundamentals of hypothesis testing for both one and two samples, ANOVA, linear regression, and a brief introduction to nonparametric statistics.

Credit Hours: 3 credits (3 class hours)

Level 2 placement or higher in Math or concurrent enrollment in MATH 0835.

I. Course Outcomes and Topics

Upon successful completion of this course, students will:

1. Solve problems using mathematics, and determine if solutions are reasonable.
   • Analyze and solve counting and probability application problems.
   • Analyze and solve problems relating to the binomial and normal distributions.
   • Analyze a linear correlation and determine if it is reasonable.
2. Apply mathematical concepts to solve real-life problems using formulas (deduction) and interpret the meaning of the solution.
   • Perform multiple types of hypothesis tests such as binomial, chi-square, one-sample and two-sample, and analyze the results.
3. Construct meaningful connections (transfer of knowledge) between mathematics and other disciplines.
4. Apply technology for mathematical reasoning and problem solving.
   • Use graphing calculators, computer software, and tables in an appropriate manner to assist in solving descriptive and inferential related problems in the study of statistics.
5. Analyze data/graphs by using mathematical modeling and/or statistical reasoning.
6. Calculate sample size, as well as use a given sample to determine the true population parameter within the established constraints utilized in the Central Limit Theorem.
7. Construct frequency distribution tables, histograms, graphs, and charts from raw data sets, using traditional methods as well as computer software and/or graphing calculators.
8. Apply and utilize correct statistical terms.

III. Topics

• Frequency Tables
• Histograms, Statistical Graphs
• Measures of Center
• Measures of Variation
• Measures of Relative Standing
• Probability and Counting
• Probability Distributions, Mean, Variance, Expectation
• Binomial Distribution
• Standard Normal Distribution
• Applications of Normal Distributions
• Central Limit Theorem
• Estimate Population Proportion, Sample Size
• Basics of Hypothesis Testing/Proportions (& p-value)
• Testing a Claim about a Mean: \( \sigma \) Not Known
• Testing a Claim about a Standard Deviation and Variation
• Inferences about Two Means (Independent t-test)
• Correlation/Significance of Correlation
• Linear Regression
• Intro Nonparametric, Rank Correlation
• Contingency Tables
• Test for Independence

IV. Course Materials

The following materials are required:

• MyStatLab Access Code: ISBN 0321694643 (this can be purchased in the bookstore or directly from Pearson, see instructions on MyStatLab handout.)

Note: The required MyStatLab access code contains an e-textbook. Therefore, the custom text is not required, but it is strongly recommended as a hard copy of the book is often easier for students to navigate.

• Graphing Calculator: The TI-84+ calculator will be the demonstration tool in the classroom. The TI-83/84 series is strongly recommended. Cell phones may not be used as calculators on exams.

The following materials are strongly recommended:


Note: The above items may be purchased separately (but the bundle is cheaper)


• Student Solution Manual (if purchased separately): ISBN 0321837924

V. Course Policies

Attendance:
Attendance in this class is required. Students are expected to be on time for and remain until the completion of all class meetings. Students who are marked absent for two consecutive weeks of class will receive an FA grade (equivalent to an F for GPA purposes). If you would like to petition for an exemption after having missed two weeks, you may do so by contacting the Dean of Math and Science in K-240 on Main Campus. Successful petitions will require documentation demonstrating an acceptable reason for having missed two consecutive weeks of class.
Tardies:
Students are expected to come to class on time. Being tardy disrupts the class (see “Classroom Behavior” section below). Students with repeated tardies will risk earning an FA (see “Attendance” above) and will be required to meet with the Dean of Students before being allowed to return to class. If you have circumstances that cause you to regularly be late to class, you need to enroll in a section that you can arrive on time for.

Homework:
MATH 1530 homework will count for 10% of your grade. The homework assignments for this course must be completed using MyStatLab. Understand that you cannot put off an assignment until the last minute, as you may experience technical difficulties or run out of time when attempting to do the work. It is your responsibility to manage your time carefully. Homework assignments are given firm deadlines. All homework must be completed by the listed due date & time. Due dates will be posted in MyStatLab and will be correspond to the day and time of the test they are for (or the second test day for a two day test). To raise your score, simply rework missed problems (you do not need to repeat the whole assignment) until your overall score reaches a score you are happy with. For extra practice, see the Suggested Homework Problems posted in NSOnline. These problems can be found in the textbook and are by section and correspond to the material we cover in class. Solutions can be found in the Student Solutions Manual included in the bundle.

Note: The “Prepare for Homework” is not factored into your overall grade although if you are co-registered for MATH 0835, you are required to complete it before beginning the MATH 1530 homework.

Quizzes:
Quizzes will count for 10% of your grade. There will be a MyStatLab quiz corresponding to each MyStatLab homework assignment. Quizzes will be given firm deadlines which are posted on MyStatLab. Quiz deadlines will correspond with the test day (or the second test day for a two day test). All three attempts for each quiz are due at class time the day of the exam they correspond with. Students are responsible for keeping track of the due dates.

Students will have 3 attempts for each quiz but unlike the homework, you will not be able to rework individual problems, but will have to retake the entire quiz to improve the quiz grade. The highest of the three quiz attempts will be used for the quiz average. It is suggested that you wait to complete a quiz until you have completed the corresponding MyStatLab homework assignment with a score of at least 90%, but the homework is not a prerequisite for the quiz. Students should take advantage of all 3 quiz attempts for each quiz. The extra practice will help on the tests and can improve your overall average. If your score drops on a second or third quiz attempt – rest assured, only the highest score for each quiz will be considered. So use all three attempts! You should review before retaking a quiz. If you want to review a quiz after you have closed it, simply go to the MyStatLab Gradebook, and click “review” by the quiz you need to review.

Note: The “Review Quiz” for each test is not factored into your overall grade although it can be a great way to prepare for exams. You can do specific problems for practice or take the whole thing. You can also review all homework and quizzes for each test by going to the MyStatLab Gradebook, and clicking “review” by the assignment you want to go back and look at.

Make up policy:
No make-ups or late work of any kind will be accepted. Manage your time carefully, use a calendar to record due dates, attend class and work in MyStatLab regularly so that you are aware of due dates. There are no exceptions to this policy. You need to prepare for technological difficulties by not leaving your work until the last minute.

Exams and missed exams:
There are three in class tests as well as one comprehensive Final Exam. Tests dates will be announced 1-2 weeks before the day of the test. Attend class regularly so you know when exams will occur. If you miss a test,
the test will be counted as a zero. However, the lowest test score (including a zero for a missed exam) will be replaced by the Final Exam grade provided that the Final Exam grade is higher than the test grade that it replaces. This only applies to one test. If you miss more than one test, the second zero will stand. Tests cannot be taken early; tests cannot be taken late. Tests can only be taken at the scheduled day and time.

**Final exam:** This course has a required Comprehensive Final Exam that is 20% of the final grade.

To earn an A in this class, you need to do consistent work. You should register and begin working in MyStatLab immediately after the first class. The longer you wait, the less likely you are to succeed in the class. If money is an issue, there is a temporary access code you can use for 3 weeks in MyStatLab so there are no excuses for not getting started. You need to get your money together to put in the permanent code by the time the temporary one expires (approximately 2 weeks). You should do a little bit of homework every day if possible. If you put your homework all off until the day it is due, you are not going to get very much out of it. You need to work similar homework problems if you have relied on the learning aids in MyStatLab, as until you can do them yourself without aids, you are not ready for the quizzes and tests.

**Grading:** Grades will be based on in class tests, homework, quizzes, and a final exam as follows:

- Three In Class tests 60% (20% each)
- MyStatLab Homework 10% (see details on page 3)
- MyStatLab Quizzes 10% (see details on page 3)
- Final Exam (comprehensive) 20% (Required)

**Grading Scale:**

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<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>A</td>
<td>90-100</td>
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<tr>
<td>B</td>
<td>80-89</td>
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<td>C</td>
<td>70-79</td>
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<tr>
<td>D</td>
<td>60-69</td>
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<tr>
<td>F</td>
<td>0-59</td>
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FA= failure, attendance-related (see attendance policy above).
FN= failure, never attended class

**Note:** The last day to withdraw from the course with a W is **Monday, March 27th.**

**VI. Communications**

It is the student’s responsibility to check D2L and MyNSCC email on a regular basis. These are the official communication channels between the college and students. Students are responsible for the information communicated through those channels. D2L contains specific course information and MyNSCC contains information important for other purposes.

**VIII. ADA Statement**

Nashville State Community College complies with the Americans with Disabilities Act. Please contact the Access Services Coordinators at 615-353-3721 or 615-353-3741 if you would like to arrange ADA accommodations. K-106 on Main Campus. Such services must have proof of documentation that is not over three years old.
VII. Inclement Weather Policy

Inclement Weather Policy: If classes at NSCC are cancelled there will be a posting to the school website in the announcement box at the top of the page and it will be on the school recording (615) 353-3333. Students need to check their NSOnline/D2L shell for an assignment and information from their instructor.

IX. Classroom Behavior

Nashville State Community College has a zero tolerance policy for disruptive conduct in the classroom. Students whose behavior disrupts the classroom will be subject to disciplinary sanctions. The instructor has primary responsibility for control over classroom behavior and maintenance of academic integrity. He/she can order temporary removal or exclusion from the classroom of any student engaged in disruptive conduct or in conduct which violates the general rules and regulations of the College. Disruptive behavior in the classroom may be defined as, but is not limited to, behavior that obstructs or disrupts the learning environment (e.g., offensive language, harassment of students and professors, repeated outbursts from a student which disrupt the flow of instruction or prevent concentration on the subject taught, failure to cooperate in maintaining classroom decorum, etc.), the continued use of any electronic or other noise or light emitting device which disturbs others (e.g., disturbing noises from beepers, cell phones, palm pilots, lap-top computers, games, etc.). All electronic devices are to be turned off (or ‘vibrate’) during class unless prior consent has been given by the instructor. Students wanting to make use of an electronic note-taking device (laptop, ipad, etc.) must see the instructor and sign a ‘use-contract’ prior to using the device.

Please be aware that children are not allowed in class or unattended on campus.

Academic Dishonesty (Honor Code)

Any form of academic dishonesty, cheating, plagiarizing, or other academic misconduct is prohibited. “Plagiarism may result from: (1) failing to cite quotations and borrowed ideas, (2) failing to enclose borrowed language in quotation marks, and (3) failing to put summaries and paraphrases in your own words” (A Writer’s Reference 331). Academic dishonesty may be defined as, but is not limited to, intentionally trying to deceive by claiming credit for the work of another person, using information from a web page or source without citing the reference, fraudulently using someone else’s work on an exam, paper, or assignment, recycling your own work from another course, purchasing papers or materials from another source and presenting them as your own, attempting to obtain exams/materials/assignments in advance of the date of administration by the instructor, impersonating someone else in a testing situation, providing confidential test information to someone else, submitting the same assignment in two different classes without requesting both instructor’s permission, allowing someone else to copy or use your work, using someone else’s work to complete your own, altering documents, transcripts or grades, and forging a faculty/staff member’s signature. In addition to other possible disciplinary sanctions that may be imposed through regular college procedures as a result of academic dishonesty the instructor has the authority to assign an “F” or a “Zero” for the exercise, paper, or examination or to assign an “F” for the course.