

Contact Information:

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Office Hours: MWF 10-11am, TR 2-3:30pm and by appointment

For Class updates and e-book access, check my webpage at <http://radar.ngcsu.edu/~jeholliday>.

Textbook: All students are required to purchase the **e-book** version of the course text. The product is called **statsportal** and includes resources such as an online tutoring system, video clips, animations and much more. It also contains an online Homework/Quiz module which we will utilize so each student must be registered in the online course.

About the ebook: StatsPortal is a web site containing a complete eBook that supports highlighting and note taking, study resources, and your assignments. We will be using the Portal for assigned coursework, so you will need to purchase access to it. You may do this by purchasing a package containing the print text and access code from the bookstore, or you can purchase access to the Portal directly from the publisher at www.portals.bfwpub.com (a preview is available at this site as well).

StatsPortal includes the complete eBook so it is not required that you purchase a print textbook as well. The purchase of the print book is optional. StatsPortal alone sells for approximately half the price of the print text. The bookstore is, I believe, also selling packages of the print book and Portal access at a significant discount, so make sure you check all of your options before deciding what to purchase.

Prerequisite: Three hours of college mathematics completed with a grade of "C" or above. A student will not be allowed credit for MATH 2400 after completing MATH 3300 with a grade of "C" or above.

Catalog Description: A noncalculus introduction to descriptive and inferential statistics. Topics include graphical and numerical methods of describing data, hypothesis testing, linear regression and correlation, the normal distribution, and estimation.

Course Objectives:

After completion of the course the student will be able to:

- Distinguish the use of descriptive statistics from the use of inferential statistics.
- Distinguish qualitative data from quantitative data.
- Provide a strategy for collecting a random sample from a given population.
- Identify the different types of sampling.
- Construct a frequency distribution and relative frequency distribution for a given set of data.
- Construct an appropriate graphical representation of qualitative data.
- Construct a histogram for a given set of data.
- Compute and provide a qualitative interpretation for the mode, median, and mean of a given set of data.
- Compute and provide a qualitative interpretation for the range and standard deviation of a given set of data.
- Compute and provide a qualitative interpretation for z-scores.
- Construct and provide a quantitative interpretation for boxplots.
- Find the proportion of data between two given values for any distribution using the Empirical Rule or Chebyshev's Theorem.
- Find the value of a given percentile for a normal distribution.
- Compare scores from two different normal distributions using standard scores.

- Construct a scatterplot for a given set of paired data.
- Compute and provide a qualitative interpretation for the correlation coefficient of a given set of paired data.
- Compute the slope and Y-intercept of the least squares prediction line and use the equation for the least squares prediction line to predict the value of one variable from the value of the other variable.
- Compute and interpret probabilities.
- Distinguish a discrete random variable from a continuous random variable.
- Construct and identify probability distributions.
- Compute and interpret the mean, variance, standard deviation, expected value of a discrete random variable.
- Find the proportion of data between two given values for any normal distribution.
- Compute and provide a qualitative interpretation for the mean of all sample means and the standard error of the mean for a given population and sample size.
- Find and provide a qualitative interpretation for a confidence interval.
- Perform the six steps of hypothesis testing for a z-test, t-test, t-test for two independent samples, and t-test for two matched samples.
- Distinguish Type I errors from Type II errors and provide a strategy for minimizing the chance of one or the other occurring.
- Determine the appropriate hypothesis test to use in a given situation.

Metacognitive Model and Teacher Education Program Competencies :

The NGCSU Mathematics Education Program prepares teachers to assume within the school community the roles of Decision-Maker, Facilitator, and Leader as identified in the metacognitive model. Twelve Teacher Education Program competencies reflecting the model are aligned to a specific role. Overlap into more than one role and mathematics course may occur. Current research and professional standards identify these competencies as important for effective teaching (NBPTS and ASCD Framework).

Decision-Maker	Facilitator	Leader
Assessment	Individual Differences	Ethical Perspectives
Planning	Subject Matter Knowledge	Reflection/Metacognition
Problem Solver	Communication	Professional Leadership
Methods, Materials, Resources	Classroom Management	Research and Evaluation

Methods of Instruction:

The methods of instruction are determined by the instructor; however, the instructor is expected to use a variety of methods. These methods may include, but are not limited to lecture; problem-solving sessions with informal assessment by the student or instructor; discussion; group projects; timely feedback from test, quiz, or project results (formative assessment); question and answer; computer or calculator based explorations; and student presentations. Students will be encouraged to assess and monitor their own problem-solving process to determine when an error has been made or a new strategy should be used.

Evaluation Methods:

- Homework/Participation: There will be assigned homework through the online homework module to be completed and sent in as well as some in-class assignments. There will also be a question of the day to be answered online pertaining to information discussed in class that day.
- Projects/Assignments: There will be 3 group projects assigned during the course of the semester.
- Presentations: One of the three group projects will be a major project and for that project, there will be an in-class presentation. These will be scheduled shortly after the project is due. The Presentation will be part of that project grade.

- Testing: There will be 3 in class exams and one comprehensive final exam.
- Final Grade Calculation: Your final grade is computed as follows:
 - Homework assignments (online assignments, in-class assignments and questions of the day): 10%
 - Test Average (from the three in-class exams): 40%
 - Project Average: 20%
 - Final Exam (which will be comprehensive): 30%
 - Overall grades will be issued as follows:
 - * Students earning above 89.5% of all points will receive an **A**.
 - * Students earning from 79.5% to 89.4% of all points will receive a **B**.
 - * Students earning from 69.5% to 79.4% of all points will receive a **C**.
 - * Students earning from 59.5% to 69.4% of all points will receive a **D**.
 - * Students earning less than 59.5% of all points will receive an **F**.
- Class Evaluations: Class evaluations at NGCSU are now conducted on-line through Banner. Evaluation of the class is considered a component of the course and students will not be permitted to access their course grade until the evaluation has been completed. The evaluations will be accessible beginning one week prior to Final Exam week. Specific instructions will be made available when the surveys are activated.

Course Content: (See tentative schedule for timeline.)

1. Graphical and numerical methods of describing data.
2. The normal distribution.
3. Correlation and linear regression.
4. Hypothesis testing.
5. Estimation.

Knowledge Base:

1. Required Text: : StatsPortal E-book (Moore, David S., The Basic Practice of Statistics, 5th edition, W.H. Freeman, 2010). .) Purchase access card at NGCSU bookstore or online. See course instructor for details.
2. Supplemental Text:
3. Library Resources: Moore, David E., Statistics: Concepts and Controversies, 4th edition, W. H. Freeman, NY, 1996.
4. World Wide Web Resources:
5. Technology Resources: Graphing calculator (e.g. TI-83), spreadsheet (e.g. Microsoft Excel), statistical package (e.g. SPSS), symbolic algebra package (e.g. Maple).

General Expectations:

The student is expected to abide by the university's integrity code. "On my honor, I will not lie, cheat, steal, plagiarize, evade the truth or tolerate those who do."

- Calculator: You will need a graphing calculator for this course. I would highly recommend either the TI-83 or TI-84 as these are the models that are used in the text and will be used during the lecture. If you have another model and have questions, please come and see me.
- Attendance: Any student missing more than 14% of the class periods (6 class periods) will receive a grade of WF. (After midterm this will be an F.) There are very few exceptions. You are expected to be in your seat and ready to go at the beginning of the class. If you are tardy and arrive after I have taken the roll, I may not change your status for that class period. If you must miss a class, please email me prior to missing if at all possible.

- Make-up Policy: If you miss an exam with a valid reason, then a make-up can be scheduled if you contact me in a timely manner. Failure to contact me in a timely manner will result in no make-up test allowed. I will determine what constitutes a valid reason so I strongly suggest that you contact me on the day of the test or earlier. There are no make-ups for any of the homeworks or in-class assignments.
- Withdrawal Policy: Students who initiate withdrawal prior to the withdrawal deadline at midterm will receive a grade of W.
- Note: Any student eligible for and requesting academic accommodation due to a disability is requested to provide the necessary documentation as soon as possible. Please contact Elizabeth McIntosh, Coordinator , Student Disability Resources at 867-2782 or by email at emcintosh@ngcsu.edu for more information.