#  Course Name Syllabus

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| Class:  | MAT 156 -- 75005, 75006, & 75007 |
| Semester: | Fall 2019 |
| Classroom and Class Time: | Room 205 Western Dubuque HS 9:03-10:04, 10:09-11:07, & 2:10-3:09 |
| ***Start and End Dates:***  | 8/23/2019to2/27/2020 |

## Academic Department: Liberal Arts, Sciences, and Business -- Peosta

Final:The final date and time will be announced later in the trimester. Faculty members may choose to give an exam or incorporate a project/presentation as a final. If a final exam is not given, class is still held at the scheduled final exam time to complete the required goals and objectives of the course and meet the scheduled required hours.

### Instructor Information

**Name**: Jennifer Galle

Phone: (563) 876-3442 x3067

Email: jennifer.galle@wdbqschools.org

*NICC email is the official means of communication, you should regularly check your email.*

Office Location: Room 205 WDHS

Office Hours: 7:45am-8:00am and 3:10-3:45pm

Best method to contact instructor: Email

*NICC has a commitment to respond to student communication within*

*24 hours on a school day, and 48 hours on non-school days.*

### Course Information

### Course Description

This course will introduce that basic methods of statistical reasoning to help develop the ability to summarize data, interpret data, and draw conclusions based on the data. The first topics discussed are descriptive statistics; the second, inferential statistics.

**Primary Common Learning Outcome Assessed**: Think Critically

**Unit Objectives**

Refer to course guide located in your Brightspace course.

**Required Materials:** The textbook required for this course will be provided by the high school for the student use.  The text is titled:  Elementary Statistics a Step by Step Approach by Bluman. Students will need to have a notebook & folder OR a binder with loose-leaf, pens, pencils, student agenda, and a TI-83 Plus or TI-84 calculator.

**Methods of Delivery:** Face-to-face

#### **Grading Procedures and Scale:**

#### Assignments: Assignments will be given for each section. Answers to assignment questions will be provided for students to monitor their progress in the understanding of the course content. Students are responsible for checking answers and asking questions to better their understanding. Assignments will not be graded. Methods of Assessment: Exams will be given at the end of each unit as well as a cumulative final test at the end of the trimester. The average on unit exams will be weighted at 70% of a student’s overall grade. The final exam will be weighted at 30% of a student’s overall grade. Unit quizzes will be given on a regular basis to help students evaluate their own progress but will not be graded. All exams will be graded and returned to students within one week of their completion.

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| Grade | Grading Scale by Percent of Total Points*Ex. (94 - 100%)*  | Grading Scale by Points*Ex. (940 - 1000+)* |
| A | 93-100% | 1395-1500 |
| A- | 90-93% | 1350-1394 |
| B+ | 87-90% | 1305-1349 |
| B | 83-87% | 1245-1304 |
| B- | 80-83% | 1200-1244 |
| C+ | 77-80% | 1155-1199 |
| C | 73-77% | 1095-1154 |
| C-(or P) | 70-73% | 1050-1094 |
| D+ | 67-70% | 1005-1049 |
| D | 63-67% | 945-1004 |
| D- | 60-63% | 900-944 |
| F (or NP) | Below 60% | Below944 |

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| --- | --- | --- |
|  | # of Assignments | Points/percentage |
| Chapter homework | 40 | 0 |
| Daily Quizzes | 12 | 0 |
| Tests | 13 | 1500 |
| Total Points possible |  | 1500 |

### Course Calendar

Details of the course, deadlines, and organization can be found at the end of the syllabus. The course calendar is a guide for activities and subject to change at faculty discretion.

### Student Course Feedback

Prior to course completion you will receive an email providing a link to share your feedback. You are **EXPECTED** to complete the feedback form for each class.

### Assessment

Northeast Iowa Community College is an institution dedicated to continuous instructional improvement as part of our assessment efforts. It is necessary for us to collect and analyze course level data. Data drawn from student work for the purposes of institutional assessment will be posted in aggregate and will not identify individual students. Your continued support in our ongoing effort to provide quality instructional services at NICC is appreciated.

### Course Policies

### Attendance/Academic Engagement

Students are expected to attend class regularly. Each student, whether or not present for class will be held responsible for all information presented in class and any assignments given. If you know you will be absent in advance, please notify the instructor and make plan to make-up missed work.

#### **Academic Dishonesty**

#### Cheating is any behavior that attempts to achieve something by dishonest or deceitful means. Examples of cheating include, but are not limited to:\*Using unauthorized materials during an assessment\*Copying assignments or exam answers from another student\*Discussing exam questions and answers with other students\*Purposefully allowing another student to copy their work and submit that work as their ownThe consequence for academic dishonesty is the student will receive a “0” for the given assignment or exam.For a detailed explanation of plagiarism, visit the Lib Guide on plagiarism at http://nicc.libguides.com/citingsources

#### **Late Work**

All assignments for a unit are due by the day of the exam for that unit. Assignments will not be accepted after the exam has been given.

#### **Missing Assignments**

Students are expected to monitor their gradebook. Missing work will be accepted until the exam is given for that unit.

#### **Makeup Testing**

If you are absent the day of an exam, you need to set-up a day and time with the instructor to make it up. It will need to be made up outside of class time. The exam needs to be made up by the end of the following school day or you will lose 10% off your test score for each day after.

###  Use of Technology in the Classroom

#### **Cell Phone/Text Messaging Usage**

Student cell phones should be shut off and not in use during class unless instructed to use by the teacher. School procedures outlined in the student handbook will be used for anyone caught using their phone during class when not instructed to do so.

#### **Laptop Use**

Students may use laptop and other devices during class when instructed to do so.

#### **Recording**

The instructor will record all lectures and post links to her website. Student recording will not be necessary.

### Classroom Conduct

Students are expected to follow posted rules and procedures.

#### **Behavior**

Student behavior is regulated by the student code of conduct section in the student handbook.

 *(Students are responsible to know the Student Conduct code in the study handbook)*

#### **Emergency Procedures**

Emergency procedures are posted on the wall near the doorway and will be covered the first day of class.

##  Additional Information

### Disclaimer:

The instructor reserves the right to make any necessary changes to the information in this document as the course progresses. Dates, assignments, and point values are subject to change. Any changes to the information presented this syllabus will be given in class.

### Learning Center

The NICC Learning Centers provide tutoring assistance free of charge to any student Monday through Friday. Students are encouraged to utilize the Learning Centers in Calmar, Peosta or Dubuque.

### Access

Take advantage of the *ReadSpeaker Listen Button* to enhance understanding and comprehension of the materials in this and any syllabus within the content area. All the materials posted in the content area of NICC Brightspace classrooms have a *Listen Button* to have the text highlighted and read for you. Listening to text read aloud is shown to improve reading comprehension. www.nicc.edu/readspeaker



### Course Copyright

All course materials students receive or to which students have online access are protected by copyright laws. Students may use course materials and make copies for their own use as needed, but unauthorized distribution and/or uploading of materials without the instructor’s express written permission is strictly prohibited. Students who engage in the unauthorized distribution of copyrighted materials may be held in violation of the College’s Code of Conduct, and/or liable under Federal and State laws.

### Netiquette

The term "Netiquette" refers to the etiquette guidelines for electronic communications, such as e-mail and bulletin board postings. Netiquette covers not only rules to maintain civility in discussions, but also special guidelines unique to the electronic nature of forum messages.

### Accommodation Policy:

The Americans with Disabilities Act (ADA) provides protection from illegal discrimination for qualified students with disabilities. Northeast Iowa Community College is committed to the equal provision of education for all students. Any student who needs instructional accommodation is encouraged to contact the Coordinator of Disability Services, Peosta Campus, 1-800-728-7367, ext. 280 or Calmar Campus, 1-800-728-2256, ext. 258.

### Statement of Non-Discrimination

It is the policy of Northeast Iowa Community College not to discriminate on the basis of race, color, national origin, sex, disability, age (employment), sexual orientation, gender identity, creed, religion, and actual or potential parental, family or marital status in its programs, activities, or employment practices as required by federal and state civil rights regulations. If you have questions, concerns or to read the full policy at: https://www.nicc.edu/aboutnicc/nondiscriminationpolicy/.

### Course Calendar

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| Due Date | Assignment/Exams/Etc. | Topic | PointValue | Course Unit Objective | Program Learning Outcome | Common Learning Outcome |
| 9/5/2019 | Chapter 1 Exam | Introduction to Statistics | 100 | 1.1 Define Statistics.1.2 Explain the difference between a population and a sample.1.3 Distinguish between descriptive and inferential statistics.1.4 Classify data as quantitative or qualitative.1.5 Classify data as discrete or continuous.1.6 Identify four scales of measurement for data.1.7 Identify the four basic sampling techniques.1.8 Explain the difference between an observational study and an experimental study. | Students will demonstrate competence in problem-solving, logical thinking, and the application of mathematical processes. | Think Critically |
| 9/18/2019 | Chapter 2 Exam | Frequency Distributions and Graphs | 100 | 2.1 Organize data using frequency distributions, relative frequency distributions, cumulative frequency distributions and cumulative relative frequency distributions.2.2 Represent the data graphically using bar graphs, pareto charts, pie charts, histograms, stem and leaf plots. | Students will demonstrate competence in problem-solving, logical thinking, and the application of mathematical processes. | Think Critically |
| 10/7/19 | Chapter 3 Exam | Data Description | 100 | 3.1 Summarize a set of data by computing quantities that measure central tendency: mean, median, mode, midrange.3.2 Summarize a set of data by computing measures of variation: range, variance and standard deviation.3.3 Use Chebyshev's Theorem to calculate the proportion of values in the data set that we can expect to fall with K standard deviations of the mean.3.4 Use the Empirical rule to calculate the proportion of values in the data set that we can expect to fall within one, two and three standard deviations of the mean.3.5 Identify the postion of a data value in a data set using measures of position, such as percentiles and quartiles.3.6 State the five number summary for a data set and draw the corresponding boxplot.3.7 Demonstrate the procedure for identifying outliers. | Students will demonstrate competence in problem-solving, logical thinking, and the application of mathematical processes. | Think Critically |
| 10/17/19 | Chapter 4 Exam | Introduction to probability | 100 | 4.1 Determine sample spaces.4.2 Identify the three methods of assigning probabilities to outcomes and find the probability of an event using classical and empirical probability.4.3 Use the addition rules to find probability of compound events.4.4 Use the multiplication rules to find the probability of compound events.4.5 Find the conditional probability of an event.4.6 Use the fundamental counting rule to find the total number of outcomes in a sequence of events.4.7 Use permuations and combinations as appropriate counting techniques.4.8 Find the probability of an event using an appropriate counting technique. | Students will demonstrate competence in problem-solving, logical thinking, and the application of mathematical processes. | Think Critically |
| 10/28/19 | Chapter 5 Exam | Discrete probability distributions | 100 | 5.1 Distinguish between discrete and continuous random variables.5.2 Construct a probability distribution for a discrete random variable.5.3 Compute the mean, variance, standard deviation and expected value for a discrete random variable.5.4 Determine which model—uniform, binomial, hypergeometric, Poisson or multinomial—is appropriate for describing a given situation.5.5 Use the appropriate model—binomial, hypergeometric, Poisson or multinomial—to find the probabilities for the outcomes of a discrete variable.5.6 Find the mean and the standard deviation for the variable of a binomial distribution.5.7 Find the standard deviation for a Poisson distribution. | Students will demonstrate competence in problem-solving, logical thinking, and the application of mathematical processes. | Think Critically |
| 11/7/19 | Chapter 6 Exam | The Normal Distribution | 100 | 6.1 Identify distributions as symmetric or skewed.6.2 Identify properties of the normal distribution.6.3 State the mean and the standard deviation of the standard normal distribution.6.4 Find the area under the standard normal distribution, given various z values.6.5 Find the z-value, given the area under the standard normal distribution.6.6 Find the probabilities for a normally distributed variable by transforming it into a standard normal variable.6.7 Use the central limit theorem to solve problems involving sample means for large samples.6.8 Use the finite population correction factor, when appropriate, to solve problems involving sample means. | Students will demonstrate competence in problem-solving, logical thinking, and the application of mathematical processes. | Think Critically |
| 11/13/19 | Trimester 1 Final Exam | Cumulative Exam chapters 1-6 | 225 |  | Students will demonstrate competence in problem-solving, logical thinking, and the application of mathematical processes. | Think Critically |
| 11/26/19 | Chapter 7 Exam | Confidence Intervals and sample sizes | 100 | 7.1 Define estimation.7.2 Define point estimate and find a point estimate for the mean.7.3 State the properties of a "good" estimator.7.4 Define interval estimate.7.5 Construct confidence intervals for a population mean when σ is known.7.6 Determine the minimum sample size for finding a confidence interval for the population mean.7.7 Construct confidence intervals for the population mean when σ is unknown.7.8 Construct confidence intervals for a population proportion.7.9 Determine the sample size for finding a confidence interval for a population proportion.7.10 Find a confidence interval for the variance and the standard deviation. | Students will demonstrate competence in problem-solving, logical thinking, and the application of mathematical processes. | Think Critically |
| 12/17/19 | Chapter 8 Exam | Hypothesis testing | 100 | 8.1 Define the term: statistical hypothesis.8.2 Define the terms: null hypothesis and the alternative hypothesis.8.3 Using the five steps of the traditional method, conduct a hypothesis test for the population mean, when σ is known (using the z test) and when σ is unknown (using the t test): State the null and alternative hypotheses & identify the claim; Find the critical values; Compute the test value; Make the decision to reject or not reject the null hypothesis; Summarize the results in terms of the claim. 8.4 Using the five steps of the p-value method, conduct a hypothesis test for the population mean, when σ is known and when σ is unknown: State the null and alternative hypotheses & identify the claim; Compute the test value; Find the p-value; Make the decision to reject or not reject the null hypothesis; Summarize the results in terms of the claim. 8.5 Using both the traditional method and the p-value method, conduct a hypothesis test for the population proportion.8.6 Conduct a hypothesis test using confidence intervals.  | Students will demonstrate competence in problem-solving, logical thinking, and the application of mathematical processes. | Think Critically |
| 1/15/20 | Chapter 9 Exam | Testing the difference between two parameters | 100 | 9.1 Formulate and test hypotheses for the difference in population means using the z test.9.2 Formulate and test hypotheses for the difference in population means using the t test.9.3 Formulate and test hypotheses for the difference between proportions.9.4 Formulate and test hypotheses for the difference between two variances. | Students will demonstrate competence in problem-solving, logical thinking, and the application of mathematical processes. | Think Critically |
| 2/3/20 | Chapters 10 and 11 Exam | Correlation and regression and chi-square testing | 100 | 10.1 Illustrate the relationship between two variables using a scatter plot10.2 Compute the correlation coefficient for the sample data.10.3 Interpret the sample correlation coefficient.10.4 Test the significance of the correlation coefficient10.5 Compute the equation of the regression line using the sample data.10.6 Use the regression line to make predictions for the dependent variable.11.1 Test a distribution for goodness of fit using chi-square.  | Students will demonstrate competence in problem-solving, logical thinking, and the application of mathematical processes. | Think Critically |
| 2/10/20 | Chapter 12 Quiz | ANOVA | 50 |  | Students will demonstrate competence in problem-solving, logical thinking, and the application of mathematical processes. | Think Critically |
| 2/17/20 | Trimester 2 Final Exam | Cumulative Exam Chapters 7-12 | 225 |  | Students will demonstrate competence in problem-solving, logical thinking, and the application of mathematical processes. | Think Critically |