Cleveland State University  
Department of Mathematics

MTH 147-1-Spring 2015  
Statistical Concepts with Applications  
3 credit hours

Course Meeting Times and location  
MWF 8:05-8:55 MC332 on Mondays and Wednesdays and MC435 on Fridays (Lab Days)

Prerequisite  
A grade of SC or better in MTH 087 or suitable placement-exam score.

Instructor Contact information  
Name: John Altiere  
Phone: 216-687-5247 extension 2  
Email: j.altiere@csuohio.edu  
Office address: RT1504  
Scheduled Office Hours: Monday, Wednesday and Fridays 11:15am-1:00pm

Blackboard will be my primary means of communicating with you outside of class. I will be using the version, Blackboard Learn to make announcements, post data sets, class notes, handouts, assignments and other course content as well as to make changes to the syllabus or assignments. I will also report grades on Blackboard. **CHECK IT REGULARLY!**

Course Description  
The purpose of this course is for students to learn basic statistical concepts and methodology. Topics include ways of describing, organizing and exploring data, an introduction to probability to support the reasoning behind standard methods of inference, and use of the modern computer technology in basic model building, data analysis and decision making. This course will prepare students for further study in statistics and its applications.

Course Goals and Objectives  
Upon completion of this course, students will become proficient in  
- summarizing data both graphically and numerically  
- understanding reliable and unreliable means of collecting data  
- elementary probability  
- comprehending the concept of sampling variability  
- constructing and interpreting confidence intervals  
- conducting tests of inference  
- understanding the concept of statistical significance  
- using one quantitative variable to predict another  
- using computer technology for statistical graphics and calculations

Text  
*Statistics, The Art and Science of Learning from Data 3/e* by Alan Agresti and Christine Franklin (Pearson) 2nd edition also ok.
Calculator: You will need a solar scientific calculator. If purchasing a calculator, I recommend a TI30XIIS or a TI30XS. Avoid the TI30XA. These are all sold in the CSU bookstore, though you can purchase them at many locations such as Target or Office Max. **You may not use your cell phone as a calculator on any exam or quiz!**

Non-Graded Homework
Practice problems will be assigned, and will be posted on Blackboard with answers, but these will usually not be required to be handed in. You are **strongly** recommended to complete these problems. They will be excellent preparation for the exams and quizzes. For further practice, you may also use the odd numbered exercises in the text.

Quizzes, In Class Projects, Graded Homework/Projects
Throughout the term, there will be a series of in-class quizzes, in-class projects, and graded homework assignments. The quizzes may be unannounced so be sure to have your notes with you for every class. If you miss in-class quizzes or in-class projects, there are **no makeups for any reason**! Your lowest quiz score will be dropped. Each in-class quiz or project will be worth 15 points. They will be open book and open note. After dropping your lowest quiz, the total points from your remaining quizzes will be divided by the total possible points of all the quizzes (minus one quiz) and multiplied by 100. Quizzes will be about 18% of your final grade.

Throughout the term, there will be a series of graded homework assignments as well as two projects. You need to show all your work, follow directions and submit your work on-time to get full credit. There will be a 15% deduction for each class session your homework or project is submitted late. **Late homework will not be accepted after two class sessions beyond the class session on which it is due.** For example, if a homework is due on Monday, then it will not be accepted after the following Friday. An assignment due on a Wednesday, will not be accepted after the following Monday, and an assignment due on a Friday will not be accepted after the following Wednesday. Each graded homework assignment will be worth 10 points. There will also be two projects. The sum of the points on the graded homework assignments and the two projects will be 100 points. The graded homework/projects will account for approximately 18% of your grade.

In Class Examinations
There will be two in class midterm exams each worth 100 points and a comprehensive final exam worth 150 points. Examinations will cover material discussed in class that may not be covered in the text. In addition, some techniques or procedures will be taught in class differently than what appears in the text. **You are responsible for all material covered in class.** Knowledge of the textbook alone is not sufficient. Some sections of the text will be assigned that will not be explicitly gone over in class. This material may appear on exams as well. **Students who know they will miss an exam are required to let the instructor know prior to the scheduled exam time in order to arrange a make-up time.** If an emergency occurs and you miss an exam, please email me as soon as possible to make arrangements for a make-up. Be prepared to provide documentation for the reason for the absence. The final exam is worth 150 points. **Students are required to receive a grade of 82 out of 150 or higher on the in-class, cumulative, final examination in order to pass the course.** All exams are open book and open note. The two midterm exams will be approximately 90 minutes in length and will be administered over two class sessions. The comprehensive final will be two hours in length. No extra time will be given for unfinished exams. The two midterm exams will be worth approximately 37% of your final grade and the comprehensive final exam will be worth approximately 27% of your final grade.
Minitab Projects
We will be using the Minitab 17 as our statistics software. I will provide what is necessary for you to download the program onto your computer, though it is available in labs around campus. I will be giving instruction on the use of Minitab during lab classes.

Class Conduct
Cell phones should be turned off or placed on vibrate. Text messaging during class is not appropriate and grounds for removal from class. **If you are found text messaging during an exam or quiz, you will be asked to leave and will be given a 0 on that test or quiz!** During computer lab sessions, checking email and surfing the web is inappropriate when the instructor is talking and again grounds for removal from the class. Other serious disruptions are grounds for removal as well.

Cheating and Plagiarism
Cheating and/or plagiarism will not be tolerated. You are cheating if you allow a student to copy work from one of your assignments. It is also cheating if you assist a student complete a take home assignment. Cheating is also not permitted on in-class exams or take-home questions. If cheating occurs, the student will receive a grade of 0 for that component of the course. **Text messaging during an exam or quiz constitutes cheating.** Information regarding the official CSU policy regarding cheating and plagiarism can be found in the CSU Code of Student Conduct at [http://www.csuohio.edu/studentlife/StudentCodeOfConduct](http://www.csuohio.edu/studentlife/StudentCodeOfConduct)

Grading
Your final grade is based on the following:
In class quizzes - 100 points (≈ 18% of your final grade)
Graded Homework - 100 points (≈ 18% of your final grade)
Two midterm exams - 200 points (≈ 37% of your final grade)
One comprehensive Final Exam worth 150 points (≈ 27% of your final grade)

Your final grade is calculated by dividing your points by 550 and multiplying by 100 and rounding to the nearest percent using the usual rounding rules. Grades are assigned according to the following scale.
93-100  A
90-92   A-
87-89   B+
83-86   B
80-82   B-
77-79   C+
70-76   C
60-69   D
0-59.9  F

**Final Exam(150 points):** The in-class final examination will be given on Wednesday, May 6 from 8:00am-10:00am in MC332
Collaboration
Collaboration may be an important part of this course. Problems will be discussed in class that may require group participation. An important aspect of this course will be learning to work with other people.

Attendance
It is extremely important that you attend class regularly. I will take attendance each class session and keep a record of it. Instruction in the course concepts and procedures as well instruction in the use of Minitab17 will make up the majority of class sessions. And, you will not have a make up opportunity on any quiz or in-class project given on a particular day.

Data
We will be studying a great deal of data. If a particular topic is personally traumatic to you (for example: discussing examples about smoking when a close relative recently passed away from lung cancer). Please let me know and I will try to adjust my examples accordingly.

Software
We will be using the Minitab17 statistical software package for data analysis and exploration. You will be given instructions for how to use Minitab17 as needed for this course. You will need access to Minitab17 outside of class. I will be sending you data via Blackboard.

General Education Statement
This course satisfies the general education requirement for Mathematics/Quantitative Literacy. More information about General Education Requirements can be found at: http://www.csuohio.edu/academic/gened/

Mathematical Assistance Center
If you need (free) mathematical tutoring, contact the Mathematics Assistance Center at Main Classroom Building 230 or 216-687-4701 (http://www.csuohio.edu/sciences/dept/mathematics/learning_center.html)

Disabilities Statement
Students with disabilities which may affect their ability to complete course requirements in this class may request appropriate accommodations by registering with the Office of Disability Services at (216) 687-2015 in Main Classroom 147 and discussing the nature of their situation. (http://www.csuohio.edu/offices/disability/)

Last Day to Withdraw without a “W” is January 23, 2015
Last Day to Withdraw with a “W” is March 27, 2015

Disclaimer
I reserve the right to modify these procedures as the course progresses. I also reserve the right to change the assignment schedule from the outline given. Any changes will be announced in class and on Blackboard. You are responsible for knowledge of any changes discussed in class. This includes exam days, lab days, and changes in policy.
## Tentative Schedule of Topics
The following is tentative outline of the course with assignments based on the 3rd edition. Changes in assignments and/or Exam dates will be announced on Blackboard. It is your responsibility to check for changes in assignments or exam dates. Where no assignment is listed, the assignment will be given in class on that date. An * indicates an assignment that will be collected and graded.

<table>
<thead>
<tr>
<th>Date</th>
<th>In Class</th>
<th>Assignment</th>
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<tbody>
<tr>
<td>1/12</td>
<td>Chapter 1</td>
<td>Practice Problems - Chapter 1</td>
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<tr>
<td>1/14</td>
<td>2.1</td>
<td>Page 28: 2.1, 2.3, 2.7, 2.8</td>
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<tr>
<td>1/16</td>
<td>Minitab Lab, Chapters 1 and 2</td>
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<td>1/19</td>
<td>MLK</td>
<td>No class</td>
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<td>1/21</td>
<td>2.2</td>
<td>Stem plot Practice</td>
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<td>1/26</td>
<td>2.4</td>
<td>Practice Problems –Chapter 2</td>
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<td>1/28</td>
<td>2.4</td>
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<td>1/30</td>
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<tr>
<td>2/6</td>
<td>Minitab Lab, Chapter 3</td>
<td>*Homework from Minitab Lab</td>
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<td>2/9</td>
<td>3.2</td>
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<tr>
<td>2/11</td>
<td>Chapter 4</td>
<td>Practice Problems Chapter 4</td>
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| 2/13 | Finish Chapters 3 and 4 | Page 108: 3.11, 3.13, 3.16  
Page 121: 3.25, 3.27, 3.39, 3.31 |
| 2/16 | President’s Day | No Class |
| 2/18 | Review for Exam 1 | *Minitab Project Chapters 1-4; Due 2/27 |
| 2/20 | Exam 1 (part 1) | |
| 2/23 | Exam 1 (part 2) | |
| 2/25 | 5.1 and 5.2 | Practice Problems 5.1 and 5.2 |
| 2/27 | 5.3      | Probability Practice Worksheet |
3/2   6.2  
3/4   6.2  Normal Distribution Practice Worksheet
3/6   Normal Distribution on Minitab
3/8-3/15 Spring Break - No Classes
3/16   7.2
3/18   7.2  Practice Problems 7.2
3/20   7.1
3/23   7.1  Practice Problems 7.1
3/25   8.1 and 8.2
3/27   Minitab Lab for Chapter 8  *Problems from Minitab Lab
3/30   8.2

4/1   8.3

4/3   8.3  Practice Problems – Chapter 8

4/6   Review for Exam 2
4/8   Exam 2(Part 1)
4/10  Exam 2(Part 2)
4/13   9.1 and 9.2
4/15   9.2  Page 405: 9.1, 9.5
4/17   Minitab Lab - One Sample z-test
4/20   9.3  *Minitab Project Chapters 8 and 9; Due 1
4/24   Minitab Lab-One Sample t-test  *Minitab Project Chapters 8 and 9; Due 5/1
4/27   9.5
4/29 and 5/1  Review for Final Exam
5/6   Final Exam 8:00 am -10:00 am in MC 332