STAT 110: Fundamentals of Statistics
Summer 2009

Name: Christopher Malone ("Malone")
Office: Gildemeister 124C
Email: cmalone@winona.edu
Phone: (507)-457-2989
Office Hours: My Schedule

Course Notes / Text:


Homework/Quizzes:

Homework assignments may be given throughout the course. Questions on the assigned homework should be asked at the beginning of each class period. I may collect some homework assignments. I strongly encourage you to stay current in your homework assignments. Late homework assignments will not be accepted in this class.

There will be several quizzes (approximately 12) given throughout the semester. Each quiz will be worth 20 points. These quizzes will contain a combination of True/False questions, multiple choice questions, and/or short answer questions. About half of the quizzes will be done in groups with the remaining being individual quizzes. Most quizzes will be given on Friday. I will not announce the type (individual or group) beforehand. The lowest two quizzes will be dropped and will not be considered in your final grade. There is no makeup for missed quizzes.

Exams:

There will be three in-class exams given in this course. I will test your ability to make conclusions and/or extensions to current methods. The lowest exam score will be weighted at 50%. This does not include the final exam. The final exam will be comprehensive. If you know you are going to miss an exam, the exam must be taken early. Makeup exams will be given in extreme (my judgment) cases only.
Grades:

Your grade will be determined by your performance on exams, quizzes, homework. My "target" for the number of points is: in-class exams = 250pts and homework/quizzes = 200pts, and the final exam 100pts. I do no weighting, so a point is worth a point in this class. Your final grade will be determined using the following percentages.

<table>
<thead>
<tr>
<th>Your Percentage</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greater than 90%</td>
<td>A</td>
</tr>
<tr>
<td>80-90%</td>
<td>B</td>
</tr>
<tr>
<td>70-80%</td>
<td>C</td>
</tr>
<tr>
<td>60-70%</td>
<td>D</td>
</tr>
<tr>
<td>Less than 60%</td>
<td>F</td>
</tr>
</tbody>
</table>

Extras:

- I encourage you to use a 3-ring binder for this class because class material will be a combination of note taking, handouts, and possible some computer output.
- Attendance in mandatory. If you miss class, it is your responsibility to get the material and get yourself caught up.
- If necessary, I reserve the right to make policy changes for this course as the course progresses.

Academic Integrity Policy:

The WSU Undergraduate Catalog contains a full listing of policies and procedures pertaining to this issue: [http://www.winona.edu/sld/6316.asp](http://www.winona.edu/sld/6316.asp). Note that both copying another student’s work and allowing someone to copy your work are clear violations of WSU’s Academic Integrity Policy. If there is reasonable evidence of copying another individual’s or group’s work, it will be construed as an act of plagiarism. The first occurrence of cheating will result in a score of zero on that specific homework assignment or exam portion; the second occurrence will result in failure of the course.

Math Basic Skills Requirement (University Studies):

This course satisfies the Math Basic Skills requirement for University Studies at Winona State University. The purpose of the Mathematics requirement in University Studies is to help students develop an appreciation of the uses and usefulness of mathematical models of our world, as applied in a variety of specific contexts. Students should complete the requirement as soon as possible, preferably in their first year and certainly no later than their third semester. Only approved courses can be used to satisfy the University Studies requirements for Basic Skills in Mathematics.
Statistics 110 contains requirements and learning activities that promote students' abilities to...

- use logical reasoning by studying mathematical patterns and relationships;
- use mathematical models to describe real-world phenomena and to solve real-world problems - as well as
- understand the limitations of models in making predictions and drawing conclusions;
- organize data, communicate the essential features of the data, and interpret the data in a meaningful way;
- do a critical analysis of scientific and other research;
- extract correct information from tables and common graphical displays, such as line graphs, scatter plots, histograms, and frequency tables;
- use appropriate technology to describe and solve quantitative problems.

The following is the official course outline for this course. My goal is to cover each of these topics, but not necessarily in the order given.

I. Introductory terms and methods of data collection including a discussion of validity
II. Descriptive Statistics
   a. Stem-and-leaf displays
   b. Frequency distributions and histograms
   c. Measures of central tendency
   d. Measures of variation
   e. Measures of position
III. Scatterplots and correlation, including a discussion of reliability
IV. Introduction to probability concepts
V. The Normal Distribution
VI. Sampling Distribution and the Central Limit Theorem
VII. Confidence Intervals
   a. One sample
   b. Independent samples
   c. Dependent samples
VIII. The Logic of hypothesis testing
   a. Statements of hypotheses
   b. Type I and Type II errors
   c. Probability values
IX. Hypothesis testing involving one sample
   a. One sample z- and t-tests
   b. Wilcoxon Signed Rank test
X. Hypothesis testing involving two means/distributions
   a. Independent samples
   b. Dependent samples
   c. Wilcoxon Rank Sum test
XI. Contingency table analysis
   a. Chi-Square test
   b. Construction of three-way contingency tables
XII. Introduction to Analysis of Variance
XIII. Additional topics as time permits