Wayne State University  
Division of Theoretical and Behavioral Foundations  
Educational Evaluation and Research  

Course: EER 7630 Fundamentals of Statistics (27269)  
Credit: 3 credit hours  
Semester & Year: Winter 2014  
Location: Web-Based  
Instructor: Akiva Lorenz  
e-mail: akiva@wayne.edu  
Office Hours: By appointment only  
Secretary: Sheri Martini  
e-mail: sheri.martini@wayne.edu  

Course Description (WSU Bulletin)  

Course Objectives  
Upon completion of this course students will be able to do the following:  
1. Distinguish between statistics and parameters  
2. Identify the differences between descriptive and inferential statistics.  
3. Differentiate among the scales of measurement.  
4. Recognize and use summation notation.  
5. Recognize and use general rules for constructing frequency distributions.  
6. Classify and use measures of central tendency.  
7. Classify and use measures of variability.  
8. Classify and use measures of relationship.  
9. Recognize and use the concepts of skew and kurtosis.  
10. Recognize and use the standard normal distribution.  
11. Recognize and use the concept of area under a curve.  
12. Recognize and use simple linear regression.  
13. Recognize and use the simple laws of probability  
14. Identify and use the standard error of a statistic.  
15. Recognize and use the concept of a sampling distribution of a statistic.  
16. Formulate and use null and alternative hypotheses.  
17. Recognize and use the concept of degrees of freedom.  
18. Identify Type I and Type II errors.
19. Select and use appropriate alpha levels.
20. Recognize and use tails of a distribution.
21. Recognize and use inferential tests for single groups
22. Recognize and use inferential tests for two groups.
23. Recognize and use inferential tests for correlated groups.
24. Recognize the application of one-way and two-way analysis of variance.
25. Recognize the concepts of power.
27. Recognize and use chi-square for tests of independence.
28. Recognize and use nonparametric statistical tests with ordinal variables.

**Textbook**

**Course Format:**
The audio lectures and accompanying Power Point presentations will be posted each Tuesday morning throughout the course. There will be discussion boards set up for student input every week. You will not receive credit for utilizing them, but I highly recommend that you participate. It is important to have a place to raise questions, both to me and the other students. I will respond to emails before 9 am every day.

**Evaluation and Grading:**
There will be three exams, to be taken on line. Each exam will cover approximately one third of the course and will be worth 40 points. The exams will be available from 12:00 am on the first day until 11:59 PM on the last day. They will be taken online. There will be new material presented during the week that the first two exams are given, and those weeks are highlighted in the class schedule on the last page.

Exam #1: Feb 10-14 (Chapters 1 – 5) 40 Points
Exam #2: Mar 17-21 (Chapters 6 – 9, 11) 40 Points
Exam #3: Apr 23-28 (Chapters 14, 15, 16, 21, 22) 40 Points

Assignments will be given each week from exercises in the text. These will not be graded, but you are expected to do them for understanding.
Grading Scale

<table>
<thead>
<tr>
<th>Points Range</th>
<th>Grade</th>
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<th>Grade</th>
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<tbody>
<tr>
<td>112 – 120</td>
<td>A</td>
<td>85 – 91</td>
<td>B-</td>
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<tr>
<td>106 – 111</td>
<td>A-</td>
<td>78 – 84</td>
<td>C+</td>
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<tr>
<td>99 – 105</td>
<td>B+</td>
<td>71 – 77</td>
<td>C</td>
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<tr>
<td>92 – 98</td>
<td>B</td>
<td>64 – 70</td>
<td>C-</td>
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Winter Schedule 2014

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Chapter</th>
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<tbody>
<tr>
<td>1</td>
<td>Jan 6</td>
<td>Basic Mathematical Concepts</td>
<td>Chapter 1</td>
</tr>
<tr>
<td>2</td>
<td>Jan 13</td>
<td>Organizing and Graphing Data</td>
<td>Chapters 2</td>
</tr>
<tr>
<td>3</td>
<td>Jan 20</td>
<td>Describing Distributions; The Normal Distribution</td>
<td>Chapters 3 and 4</td>
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<td>4</td>
<td>Jan 27</td>
<td>Correlation</td>
<td>Chapter 5</td>
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<td>5</td>
<td>Feb  3</td>
<td>Linear Regression</td>
<td>Chapter 6</td>
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<td>6</td>
<td>Feb 10</td>
<td>Sampling <em>(Exam 1)</em></td>
<td>Chapter 7</td>
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<td>7</td>
<td>Feb 17</td>
<td>Hypothesis Testing: One-Sample Case for the Mean</td>
<td>Chapter 8</td>
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<tr>
<td>8</td>
<td>Feb 24</td>
<td>Estimation</td>
<td>Chapter 9</td>
</tr>
<tr>
<td>9</td>
<td>Mar  3</td>
<td>Hypothesis Testing: Two-Sample Case for the Mean</td>
<td>Chapter 11</td>
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<td></td>
<td>Mar 10</td>
<td><strong>SPRING BREAK</strong></td>
<td></td>
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<tr>
<td>10</td>
<td>Mar 17</td>
<td>Analysis of Variance: One-Way Classification <em>(Exam 2)</em></td>
<td>Chapter 14</td>
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<tr>
<td>10</td>
<td>Mar 24</td>
<td>Multiple Comparison Procedures</td>
<td>Chapter 15</td>
</tr>
<tr>
<td>12</td>
<td>Mar 31</td>
<td>Analysis of Variance: Two Way Classification</td>
<td>Chapter 16</td>
</tr>
<tr>
<td>13</td>
<td>April 7</td>
<td>Chi-square Tests for Frequencies</td>
<td>Chapter 21</td>
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<tr>
<td>14</td>
<td>April 14</td>
<td>Other Nonparametric Tests</td>
<td>Chapter 22</td>
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<td></td>
<td>April 22</td>
<td>STUDY DAY</td>
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<tr>
<td>15</td>
<td>Apr 23 - 28</td>
<td><strong>Exam #3</strong></td>
<td>Chapters 14, 15, 16, 21, 22</td>
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*The above schedule and procedures are subject to change at the discretion of the instructor*
Wayne State University (WSU) Policies:

Student Disability Services:
If you have a documented disability that requires accommodations, you will need to register with Student Disability Services (SDS) for coordination of your academic accommodations. The Student Disability Services (SDS) office is located at 1600 David Adamany Undergraduate Library in the Student Academic Success Services department. SDS telephone number is 313-577-1851 or 313-577-3365 (TDD only). Once you have your accommodations in place, I will be glad to meet with you privately during my office hours to discuss your special needs. Student Disability Services’ mission is to assist the university in creating an accessible community where students with disabilities have an equal opportunity to fully participate in their educational experience at Wayne State University. Please be aware that a delay in getting SDS accommodation letters for the current semester may hinder the availability or facilitation of those accommodations in a timely manner. Therefore, it is in your best interest to get your accommodation letters as early in the semester as possible.

Academic Dishonesty:
No form of academic dishonesty will be tolerated. You are in this class to learn, and you must commit the effort to obtaining your own knowledge and skills. You should already be aware, but for specific examples of academic dishonesty, including what constitutes plagiarism, you should read the Undergraduate and Graduate Bulletins found at http://www.bulletins.wayne.edu/, The Student Due Process Policy at http://students.slis.wayne.edu/policies/index.php and any other formal documents that are created for students at WSU found through www.wayne.edu. By virtue of paying tuition you affirm the work you turn in is entirely your own. IF IT IS DISCOVERED THE WORK IS NOT YOUR OWN YOU WILL RECEIVED AN “F”. Any academic dishonesty will clearly be considered premeditated and not accidental. Expulsion is probably not worth the few hours of work you will avoid by cheating, so please think carefully and thoroughly, ask for help when needed, and make smart decisions.

WSU Plagiarism Policy:
Plagiarism includes copying material (more than 5 consecutive words) from outside texts or presenting outside information as if it were your own or by not crediting authors through citations. (APA cites require author, year, and page number for direct quotes in quotation marks and for paraphrases with no quotation marks.) It can be deliberate or unintended. If in doubt about the use of a source, cite it. University policy states that students can be subject to multiple sanctions, from reprimand to expulsion as a consequence of academic dishonesty. Students caught plagiarizing information from other sources will receive a failing grade in the course. To enforce this policy, all outside references must be submitted with assignments. [Check out web resources related to plagiarism to learn more. For instance a good plagiarism definition can be found at: http://www.suite101.com/content/a-definition-for-plagiarism-a10232; and paraphrasing examples good and bad at http://library.csusm.edu/plagiarism/howtoavoid/how_avoid_paraphrase.htm.}
Religious Observance Policy:
Because of the extraordinary variety of religious affiliations represented in the University student body and staff, the Wayne State University calendar makes no provisions for non-Christian religious holidays. It is University policy, however, to respect the faith and religious obligations of the individual students who find that their classes or examinations involve conflicts with their religious observances. They are expected to notify their instructors well in advance so that alternative arrangements as suitable as possible may be worked out.

Withdrawal Deadlines:
Withdrawal Policy: Students who withdraw from a course after the end of the 4th week of class will receive a grade of WP, WF, or WN.
- WP will be awarded if the student is passing the course (based on work due to date) at the time the withdrawal is requested
- WF will be awarded if the student is failing the course (based on work due to date) at the time the withdrawal is requested
- WN will be awarded if no materials have been submitted, and so there is no basis for a grade
- Students must submit their withdrawal request on-line through Pipeline. The faculty member must approve the withdrawal request before it becomes final, and students should continue to attend class until they receive notification via email that withdrawal has been approved. Withdrawals can be requested at any point from the first week of class through the end of the 10th week of classes.

Students are sent two communications each semester regarding course withdrawals and deadlines for withdrawing. The medical withdrawal process can be initiated for up to three months following the end of a term, and is not impacted by this change in withdrawal deadline. Exceptions for other reasons would be considered only when circumstances beyond a student’s control affect ability to complete course requirements, and occur after the end of the withdrawal period and prior to the beginning of the final examination period. In no case will a late withdrawal be approved after a student has taken the final exam, or received a final grade in the class. The appropriate remedy for a poor grade is normally to repeat the course. If questions exist about exceptions for course withdrawal after the deadline, please consult with the Office of the Registrar prior to advising a student to seek an exception.

Adding Classes:
Students may add classes no later than the end of the first week of classes. This includes online classes. Students may continue to drop classes (with full tuition cancellation) through the first two weeks of the term.

Anti-Discrimination and Harassment Policies:
Wayne State University respects and protects the personal and academic freedom of its students, faculty and academic staff. The programs and activities of the University are open to all qualified persons without regard to race, religion, marital status, sex, sexual orientation, age, national or ethnic origin, political belief, or physical handicap, except as
may be required by law. The University seeks to demonstrate, through all its programs and activities, its appreciation of human diversity and to maintain an atmosphere of tolerance and mutual respect that will nourish human liberty and democratic citizenship. Source: WSU’s Mission Statement: (http://www.wayne.edu/MissionStatement.htm).

**Attendance:**
You are expected to attend each class session, arrive on time, and prepared to begin each lesson by the published start time for this class. The syllabus allows you to know what general material is to be read before the designated class date. Your ability to do well on the tests will likely relate to attending and participating in the class. In the event that you are not able to attend a session, you are to contact the Instructor by phone or email advising her/him of your absence. In the event that you are not able to fulfill that expectations of the seminar, you must discuss this personally with the Instructor. The University has an Incomplete Grade Policy in place that you may qualify for; when developed in written format between you and the Instructor; should this be necessary. More information on this policy can be found at http://students.slis.wayne.edu/policies/index.php.

**The Writing Center:**
The Writing Center (2nd floor, UGL) provides individual tutoring consultations free of charge for graduate and undergraduate students at Wayne State University. The Writing Center serves as a resource for writers, providing tutoring sessions on the range of activities in the writing process – considering the audience, analyzing the assignment or genre, brainstorming, researching, writing drafts, revising, editing, and preparing documentation. The Writing Center is not an editing or proofreading service; rather, students are guided as they engage collaboratively in the process of academic writing, from developing an idea to correctly citing sources. To make an appointment, consult the Writing Center website: http://www.clas.wayne.edu/writing/. To submit material for online tutoring, consult the Writing Center HOOT website (Hypertext One-on-One Tutoring) http://www.clas.wayne.edu/unit-inner.asp?WebPageID=1330.

**MORE POLICIES CAN BE FOUND AT:**
http://students.slis.wayne.edu/policies/index.php