Math 2330-A

Introduction to Statistics for Nursing Research

Instructor: Ali Najm

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Office Hours: MW 1:30PM – 2:30PM

TTH 11:00AM – 1:00PM

Term and year: Spring 2018

Class Days and Times: MW 3:10PM – 4:25PM

Location: Strake # 204


Student learning objectives:

- Introduce definitions of statistical terms, types of data, techniques for describing and analyzing data, methods of estimation, testing hypotheses and modeling data.
- Improve critical thinking and problem-solving skills by focusing on applying statistical techniques and concepts learned to visualize, analyze, and understand data from practical real-world problems.
- Practice using common computer software (Microsoft Excel, Google Sheet, Numbers…) for basic statistical calculations and data management.
- Develop an understanding of measures of central tendency: mean, median, mode, and measures of dispersion: variance and standard deviation.
- Understand the use of various probability distributions: discrete and continuous.

Grade Determination:

Grades will be based on class participation and activities, homework, three semester tests and a comprehensive final exam.

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Homework/Projects</td>
<td>15%</td>
</tr>
<tr>
<td>Test 1</td>
<td>20%</td>
</tr>
<tr>
<td>Test 2</td>
<td>20%</td>
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<tr>
<td>Test 3</td>
<td>20%</td>
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<tr>
<td>Final</td>
<td>25%</td>
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<tr>
<td>Total</td>
<td>100%</td>
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Class Participation: Attendance in class is mandatory. Emergencies happen, so all students will be given 2 excused absences for personal issues. Excessive absences beyond that will be excused only for documented extreme circumstances. However, students who are not able to attend class often cannot finish successfully, so it is a student’s responsibility to drop the course before the deadline if they are unable to complete the course.

Homework: Homework will be assigned weekly and should be written up completely. It will be due at the beginning of class in the following week.

Attendance: Attendance is mandatory and will be recorded daily.

Calculators: You may use any calculator on homework and exams for which a calculator is allowed. You will need one that does exponents and basic probability functions. A non-graphing scientific calculator is sufficient. I have a TI 30 XX, TI 83 which meets all my needs for this class.

Exams: There will be no Make-Up exams, however to compensate for that; the lowest grade among the first three exams will be replaced with the highest among the three. In other words the highest grade among the first three exams will be counted twice. Exams will be in class on the date announced, and they will be announced one week ahead. There will be a review session prior to each exam. Final exam is comprehensive and will be given on the date specified in the spring semester final exam schedule. Calculators will be permitted on exams.
Grading Scale:

<table>
<thead>
<tr>
<th>Score Range</th>
<th>Grade</th>
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<tbody>
<tr>
<td>93-100</td>
<td>A</td>
</tr>
<tr>
<td>90-92.9</td>
<td>A-</td>
</tr>
<tr>
<td>87-89.9</td>
<td>B+</td>
</tr>
<tr>
<td>83-86.9</td>
<td>B</td>
</tr>
<tr>
<td>80-82.9</td>
<td>B-</td>
</tr>
<tr>
<td>77-79.9</td>
<td>C+</td>
</tr>
<tr>
<td>73-76.9</td>
<td>C</td>
</tr>
<tr>
<td>70-72.9</td>
<td>C-</td>
</tr>
<tr>
<td>67-69.9</td>
<td>D+</td>
</tr>
<tr>
<td>60-66.9</td>
<td>D</td>
</tr>
<tr>
<td>&lt;60</td>
<td>F</td>
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Accommodations:
The University of St. Thomas provides reasonable accommodations to students who request academic accommodation due to a disability that imposes impairment in the learning environment. Disabilities may be defined by the following:

- Learning disabilities
- Health impairments
- Physical limitations
- Psychiatric conditions

The University abides by the Americans with Disabilities Act of 1990 (ADA) and the ADA Amendments Act of 2008 (ADAA), Section 504 of the Rehabilitation Act of 1973 and other legal mandates. To receive accommodations students must provide information to validate that a disability exists. Each student’s situation is individually assessed and reviewed.

For more information, please contact the Counseling & Disability Service office.

Blackboard Resources:
You may find the login for blackboard on your My StThom page. Use your CELT login ID and password to access blackboard. Course syllabus, calendar, reminders and announcements will be found in Blackboard.

Academic Honesty:
Ethical conduct is essential to a community of scholars and students searching for truth. Anything less than total commitment to honesty and honorable conduct undermines the efforts of the entire community. Academic integrity lies at the very heart of any institution of higher learning. Students and faculty are expected to commit to a code that exemplifies each individual's honor and integrity. Any conduct that violates this standard and betrays the respect of others is a matter of grave concern and, accordingly, is deemed unacceptable.

Classroom Conduct Policy:
No disruptive behaviors. Technologies are allowed as long as they are not distracting or interfering with another student's learning. Be kind and respectful to each other.

Instructional Outline:

1. Introduction to Statistics
   1.1 An overview of Statistics
   1.2 Data Classification
   1.3 Data Collection and Experimental Design
2. Descriptive Statistics
   2.1 Frequency Distributions and Their Graphs
   2.2 More Graphs and Displays
   2.3 Measures of Central Tendency
   2.4 Measures of Variation
   TEST 1
   2.5 Measures of Position
3. Probability
   3.1 Basic Concepts of Probability and Counting
   3.3 The Addition Rule
4. Discrete Probability Distributions
   4.1 Probability Distributions
   4.2 Binomial Distributions
   TEST 2
5. Normal Probability Distributions
   5.1 Introduction to Normal Distributions
   5.2 Finding Probabilities
   5.3 Finding Values
   5.4 The Central Limit Theorem
6. Confidence Intervals
   6.1 Confidence Intervals for the Mean (σ known)
   6.2 Confidence Intervals for the Mean (σ Unknown)
   6.3 Confidence Intervals for Population Proportions

TEST 3

7. Hypothesis Testing With One Sample
   7.1 Introduction to Hypothesis Testing
   7.2 Hypothesis Testing for the Mean (σ Known)
   7.3 Hypothesis Testing for the Mean (σ Unknown)
   7.4 Hypothesis Testing for Proportions

9. Correlation and Regression
   9.1 Correlation
   9.2 Regression

10. Chi-Square Tests and the F-Distribution
    10.1 Goodness-of-Fit Test
    10.2 Independence*

Sections with a * will be covered if time permits.

Final Exam

Important Dates:
- Feb 2 - Last day to drop the course without academic penalty.
- April 2 - Last day to drop the course and receive W (Withdraw)
- Final Exam – May 7 - 15