Learning Objectives

Provide students with a basic understanding of probability and statistical concepts and an ability to apply exploratory data analysis and basic inferential procedures in solving simple real world problems. Statistical computation will be recommended using EXCEL. Upon completion of the course, students will be able to:

1. Explain the use of data collection and statistics as tools to reach reasonable conclusions.
2. Recognize, examine and interpret the basic principles of describing and presenting data.
3. Compute and interpret empirical and theoretical probabilities using the rules of probabilities and combinatorics.
4. Explain the role of probability in statistics.
5. Examine, analyze and compare various sampling distributions for both discrete and continuous random variables.
6. Describe and compute confidence intervals.
7. Solve linear regression and correlation problems.
8. Perform hypothesis testing using statistical methods.

Core Objectives (CO)
Elementary Statistical Methods addresses the following core objectives to ensure students develop the essential knowledge and skills they need to be successful in college, in a career, in their communities, and in their lives.

- Critical Thinking Skills - to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
- Communication Skills - to include effective development, interpretation and expression of ideas through written, oral and visual communication
COURSE SYLLABUS

- Empirical and Quantitative Skills - to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions

Assessment Plan

<table>
<thead>
<tr>
<th>Learning Outcomes</th>
<th>CO</th>
<th>Assessment Methods</th>
<th>Criteria/Targets</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Explain the use of data collection and statistics as tools to reach reasonable conclusions.</td>
<td>CT</td>
<td>assignment or test</td>
<td>At least 70% students receive at least 70% correct.</td>
</tr>
<tr>
<td>2. Recognize, examine and interpret the basic principles of describing and presenting data.</td>
<td>CT</td>
<td>assignment or test</td>
<td>At least 70% students receive at least 70% correct.</td>
</tr>
<tr>
<td>3. Compute and interpret empirical and theoretical probabilities using the rules of probabilities and combinatorics.</td>
<td>EQS</td>
<td>assignment or test</td>
<td>At least 70% students receive at least 70% correct.</td>
</tr>
<tr>
<td>4. Explain the role of probability in statistics.</td>
<td>COM</td>
<td>assignment or test</td>
<td>At least 70% students receive at least 70% correct.</td>
</tr>
<tr>
<td>5. Examine, analyze and compare various sampling distributions for both discrete and continuous random variables.</td>
<td>CT</td>
<td>assignment or test</td>
<td>At least 70% students receive at least 70% correct.</td>
</tr>
<tr>
<td>6. Describe and compute confidence intervals.</td>
<td>EQS</td>
<td>assignment or test</td>
<td>At least 70% students receive at least 70% correct.</td>
</tr>
<tr>
<td>7. Solve linear regression and correlation problems.</td>
<td>EQS</td>
<td>assignment or test</td>
<td>At least 70% students receive at least 70% correct.</td>
</tr>
<tr>
<td>8. Perform hypothesis testing using statistical methods.</td>
<td>CT</td>
<td>assignment or test</td>
<td>At least 70% students receive at least 70% correct.</td>
</tr>
</tbody>
</table>

Major Assignments/Exams

Your grade is based on the following performance scores: homework and in-class quizzes (15% + 15% = 30%), two midterms (40%), final exam (25%), and attendance (5%). Standard percentages will be used in determining final letter grade (i.e. 90-100% = A)

Required Reading

Recommended Reading

List of discussion/lecture topics

An introduction to the use of statistics in real world. Topics include descriptive statistics, probability distributions, confidence intervals, hypothesis tests, correlation and regression, and the use of statistical computing packages.