ISE 225 Engineering Statistics I
Spring Semester 2019
Mon, Wed 12:00-1:50pm  KAP 148

Prerequisite: ISE 220 Probability Concepts in Engineering

Course Objective:
This course will develop skills necessary for an engineer to

- Gather data from a population which is of interest for some question or experiment
- Describe and summarize features of the data
- Infer properties of a population by hypothesis tests and confidence intervals
- Understand and conduct statistical analyses including Analysis of Variance (ANOVA) and linear regression; draw conclusions from the analyses
- Use of statistical software

Instructor:
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Office Hour: Wed 2-3pm, GER 242B

TA:
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Textbook:
(Required) Montgomery, Runger, and Hubble, Engineering Statistics, 5th edition
(Optional) Paradis, R for Beginners, freely downloadable from https://cran.r-project.org/doc/contrib/Paradis-rdebuts_en.pdf
(Optional) Ross, Introduction to Probability and Statistics for Engineers and Scientists, 5th edition
**Homework:** Biweekly

**Scoring:** Homework (25%), Class Project (25%), Mid-exam (25%), Final Exam (25%)

**Syllabus:**

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Text Sections</th>
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<tbody>
<tr>
<td>W1: Jan 7, 9 W2: Jan 14</td>
<td>Introduction, data collection techniques, data summary</td>
<td>1-1, 1-2, 2-1 to 2-5</td>
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<tr>
<td>W2: Jan 16 W3: Jan 23 W4: Jan 28, 30 W5: Feb 4, 6</td>
<td>Single sample analysis: Point estimation, Hypothesis testing, Confidence interval</td>
<td>Ch 4</td>
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<td>W6: Feb 11, 13 W7: Feb 20 W8: Feb 25, 27</td>
<td>Two-sample analysis, ANOVA</td>
<td>Ch 5</td>
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<td>W9: Mar 4</td>
<td>Mid-exam</td>
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<tr>
<td>W9: Mar 6 W10: Recess W11: Mar 18, 20 W12: Mar 25, 27 W13: Apr 1, 3</td>
<td>Basic regression analysis: simple and multiple linear regression, diagnostic, reporting, other regression techniques</td>
<td>Ch 6</td>
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<tr>
<td>W14: Apr 8, 10 W15: Apr 15, 17 W16: Apr 22, 24</td>
<td>Bridging to advanced statistics: measurement, causality, introduction to statistical learning, regression-based techniques</td>
<td>Handout</td>
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<td>Final exam: TBD</td>
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Final exam: TBD