SYLLABUS

STATISTICS FOR ENGINEERS: EE 517
Spring 2014

Professor Kosko
Lecture: Friday 2:00 - 4:50 pm
Office: EEB 438
email: kosko@usc.edu
Hours: Wed 4 - 6
voicemail: (213) 740 - 6242
Fri 5 – 6

Course Summary: The course presents modern statistics with engineering applications. Emphasis is on statistical reasoning. Each student must develop and present a novel application of statistical multiple regression—on-site attendance is mandatory.


COURSE OUTLINE

JAN 17 Overview of statistics. Probability review.
JAN 24 Sampling distributions.
JAN 31 More sampling distributions. Point estimation.
FEB 7 Confidence intervals.
FEB 14 Hypothesis testing.
FEB 21 MIDTERM I. Tests for probability densities. Contingency tables.
MAR 7 Sequential tests. Linear regression. Heteroscedasticity.
MAR 14 Multiple regression. Multicollinearity diagnostics.
MAR 21 No class: Spring Break.
MAR 28 Stepwise regression. Statistical process control charts.
APR 4 MIDTERM II. Other regression types. ANOVA
APR 18 Hierarchical Bayes and Gibbs samplers. Nonparametric/robust tools.
APR 25 Class projects I—extended session. Mandatory attendance.
MAY 2 Class projects II—extended session. Mandatory attendance.
GRADING PROCEDURE

Summary: Class grade depends on two midterm exams and a final project. Homework problems are optional extra credit.


2. Homework. Checked and recorded. Not graded. A perfect set of worked homework problems can earn 10 points. Lesser homework sets earn fewer points. Grade stays as is if only some homework turned in. How much homework counts for how many points lies at the discretion of the instructor and teaching assistant. Students may discuss the homework problems among themselves but each student must work his or her own problems. Cheating warrants a course grade of F.

3. Project. Well prepared and presented approved project that demonstrates a novel application of statistics—but only after performing satisfactorily on both midterms. The project counts as the final exam and is worth 50 points. Exceptional projects can earn an automatic course grade of A. Hence: Project excellence trumps all else. Projects must have the instructor’s written approval. Failure to present a project on schedule results in automatic course grade of F. Students who perform badly on both midterms (such as scoring a standard deviation below the class mean on the second midterm) will not qualify for a project and so will have a course grade of F. Project evaluation is at the sole discretion of the instructor. Attendance and participation during the project-presentation session are mandatory.

4. Course Grade. 100 points possible in course.

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<thead>
<tr>
<th>Grade</th>
<th>Score Range</th>
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<tbody>
<tr>
<td>A</td>
<td>90 - 100</td>
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<td>B</td>
<td>80 - 89</td>
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<td>D</td>
<td>60 - 69</td>
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<tr>
<td>F</td>
<td>0 - 59</td>
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5. Cheating. Not tolerated. Common errors in homework and exams can count as written evidence of cheating. Penalty ranges from F on exam to F in course to recommended expulsion.