



# STATISTICS 330-3 LINEAR MODELS IN APPLIED STATISTICS I

Spring 2002  
DAY COURSE

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Instructor: MADJID AMIR

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## **Prerequisites:**

MATH 232 and STAT 270 (MATH 272). Students with credit for MATH 372 may not take STAT 330 for further credit.

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## **Textbook:**

*Probability and Statistics for Engineering and the Sciences* (5<sup>th</sup> ed), by J. Devore, published by Duxbury.

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## **Course Description:**

Standard statistical inference procedures for analysing experimental and survey results.  
Statistical model building. Foundations of experimental design.

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## **Outline:**

1. Review of One-Sample and Two-Sample Problems.
  2. One-Way Analysis of Variance: Comparison of several treatment means. Model and distribution assumptions. The F-test. Multiple comparisons.
  3. Elementary Design of Experiments: Randomized blocks and two-way factorial designs.
  4. Hypothesis tests: Type I and II errors, level, power, sample size calculations.
  5. Likelihood Methods: Maximum likelihood estimation and likelihood ratio tests.
  6. Regression Analysis: Least squares. Inference on the regression model. Prediction. Correlation. Model checking. Transformations.
  7. Categorical Data: Contingency tables if time permits.
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## **Grading**

A grading scheme will be announced by the instructor at the beginning of the semester.

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*Students should be aware that they have certain rights to confidentiality concerning the return of course papers and the posting of marks. Please pay careful attention to the options discussed in class at the beginning of the semester.*

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Revised October 2001