Lecture Outline: This lecture outline is tentative and subject to change as the semester progresses.

Week 1: September 7 – 9

Material: Course motivation; Introduction to linear regression analysis; Review of statistical inference: sampling distributions, tests and confidence intervals; computer packages
Reading: 1.1 – 1.5

Week 2: September 14 – 16

Material: Two-sample t-tests, one-way ANOVA, multiple comparison procedures
Reading: Handouts

Week 3: September 21 - 23

Material: Simple linear regression, tests and confidence intervals for slope and intercept, prediction, model assessment.
Reading: 2.1 - 2.8

Week 4: September 28 – 30

Material: Correlation models; R^2 and the ANOVA table
Reading: 2.9 – 2.10, Handouts

Week 5: October 5 - 7

Material: Multiple regression and inferential tools for multiple regression
Reading: 3.1 – 3.11

Week 6: October 12 - 14

Material: Regression Diagnosis
Reading: 4.1 – 4.14

Week 7: October 19 - 21

Material: Dummy variables, two-way ANOVA, ANCOVA
Reading: 5.1 – 5.7, Handouts

Week 8: October 26 - 28

Material: Review, Midterm Exam in class on October 28.

Week 9: November 4

Material: Regression with transformed variables, polynomial regression
Reading: 6.1 – 6.9

Week 10: November 9 - 11

Material: Weighted least squares, serial correlation
Reading: 7.1-7.5, 8.1- 8.10

Week 11: November 16 - 18

Material: Multicollinearity; bias variance tradeoff, penalized regression
Reading: 9.1-9.9, 10.1 – 10.8

Week 12: November 23

Material: Variable selection; Random and mixed effects models, repeated measures
Reading: 11.1 – 11.15, Handouts

Week 13: November 30 - December 2

Material: Logistic regression, Poisson Regression
Reading: 12.1 – 12.8

Week 14: December 7 - 9

Material: Generalized linear models; Review
Reading: 13.1 – 13.6