

**ECE 492-45 Homework 5**  
**Material Covered: Linear Regression**

Hint: Watching the 22-minute video **Lab: Linear Regression** on book authors' website may be helpful.

**Problem 1** (20 points) [Interaction and Nonlinear Transformations] Read the *Nonlinear Relationship* subsection on p.90 of ISLR, and complete *ISLR-3.6.4, 3.7.9*.

**Problem 2** (20 points) [Qualitative Predictors] Complete *ISLR-3.6.6, 3.7.10*, except (h).

**Problem 3** (20 points) [*t*-statistic] Complete *ISLR-3.7.11*.

**Problem 4** (20 points) [Simulated Simple Linear Regression Models] Complete *ISLR-3.7.14*, except (g).

**Problem 5** (20 points) [Boston Dataset] Complete *ISLR-3.7.15*.