Submit Part 1 (handout) in a separate document. Submit Parts 2 and 3 together in one document.

**Part 1 – Understanding Regression Terminology**

Create a handout for students in an introductory statistics course which summarizes the following regression terms (in your own words):

* + R2 versus Adjusted R2
	+ Beta
	+ Regression Coefficient
	+ Hierarchical Regression
	+ Multi-collinearity
	+ Curvilinear
	+ Homoscedasticity
	+ Outlier
	+ Ordinary least squares
	+ Residual

**Part 2 – Simple Linear Regression**

An organization wants to use interview scores to predict performance in an employee development program. Review the regression results in Figure 5 below:



*Figure 5.* Summary output from a simple linear regression analysis produced by Excel. The results are organized in three tables - 1) regression statistics including the R squared, standard error, and number of observations, 2) ANOVA F-tests for the regression model and residuals, 3) and significance tests for the coefficients.

* + Are the results significant? Explain your response.
	+ Use the summary output to find the least square regression line: y = ax + b
	+ Jeff Jones has an interview score of 3.4. Estimate the value of y (performance) when x = 3.4.

**Part 3 – Multiple Regression**

The organization wants to use a combination of interview scores (x1), scores from a role playing exercise (x2), and personality test scores (x3) to predict performance (y) in the employee development program. An I/O psychologist collected data on the 32 employees who have already participated in the program. **The employee data are presented in Week 6 Data file. Open the file to the Employee Summary tab.**

* 1. Run a multiple regression analysis in Excel
	2. Copy the summary output (Regression Statistics Table, ANOVA Table, and Coefficient Table) into a Word document.
	3. Are the results significant? Explain your response.
	4. Should all predictors be included in the least squares regression line? Should any predictors be excluded? Why or why not?
	5. Use the summary output to find the least square regression line: y = ax1 + ax2 + ax3 +b
	6. Estimate the y (performance) for the following two candidates (show your work):

|  |  |  |  |
| --- | --- | --- | --- |
|   | Interview Score | Role Play Score | Personality Test Score |
| Laura | 5 | 4 | 45 |
| Gary | 4 | 5 | 40 |

7. Based on these results which candidate would you select into the employee development program?

Length: 1 page handout; and a 1-2 page results and summary