

# Multiple Linear Regression

Use to model the relationship two or more continuous or categorical explanatory variables has with a continuous outcome variable. Useful to describe the relationships between the variables and to predict an outcome for different values of the explanatory variables.

## Multiple Linear Regression Using Fit Model

1. From an open JMP® data table, select **Analyze > Fit Model**.
2. Click on a continuous variable from **Select Columns**, and click **Y** (continuous variables have blue triangles).
3. Choose explanatory variables from **Select Columns**, and click **Add**. To add an interaction term, select the variables and click **Cross**. Here we included the *sex\*height* interaction.
4. Click **Run**.

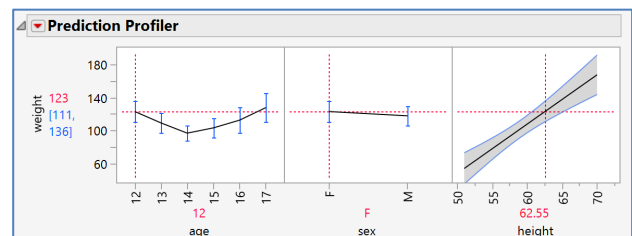
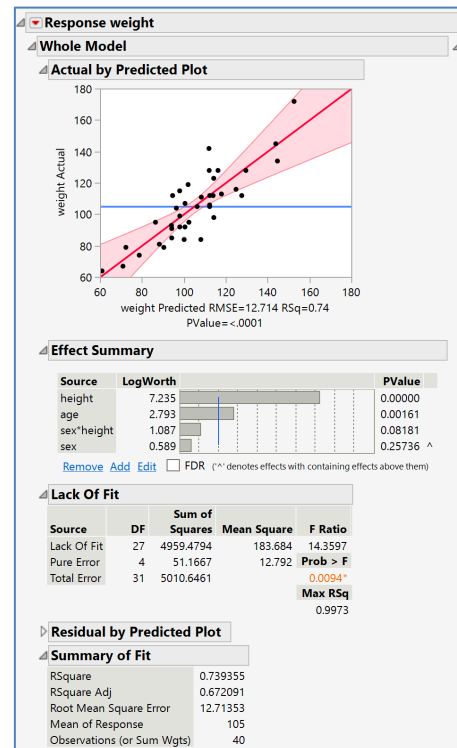
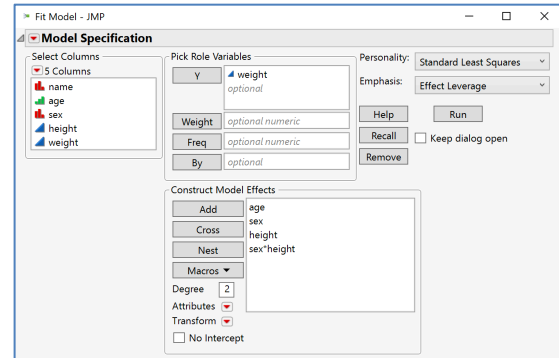
By default, JMP will provide the following results:

- Effect Summary
- Actual by Predicted Plot.
- Summary of Fit table.
- Analysis of Variance table.
- Parameter Estimates table, and more (not shown).

JMP also provides Leverage Plots for each explanatory variable in the model, and for nominal and ordinal variables, the least squares means tables.

- Select **Estimates > Show Predicted Expression** under the top red triangle to display an equation for the fitted model.
- To save the **prediction formula, predicted values, residuals** and other statistics to the data table, click on the **top red triangle**, select **Save Columns**. JMP will create new columns in the data table.
- Model Diagnostic plots can be found under **Row Diagnostics**.
- To view **indicator parameterization** (using 0, 1 coding), select **Estimates > Indicator Parameterization Estimates** from the top red triangle.
- To view the effects of the explanatory variables on the predicted response, click on the **top red triangle**, select **Factor Profiling** and choose **Profiler**. In the **Prediction Profiler**, click and drag the vertical red line for a variable to change the level or value. The **predicted mean response** and **95% Confidence Interval** are displayed.

Big Class.jmp (Help > Sample Data Folder)



Visit **Discovering JMP > Analyze Your Data > Analyze Relationships** and **Fitting Linear Models** in **JMP Help** to learn more.