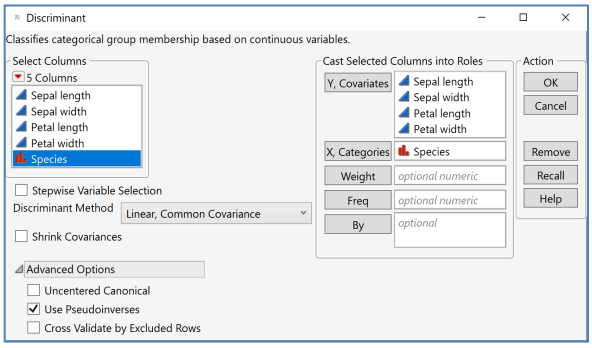
Discriminant Analysis

Build a boundary based statistical model to predict a categorical outcome (classify) as a function of multiple continuous preditor variables.

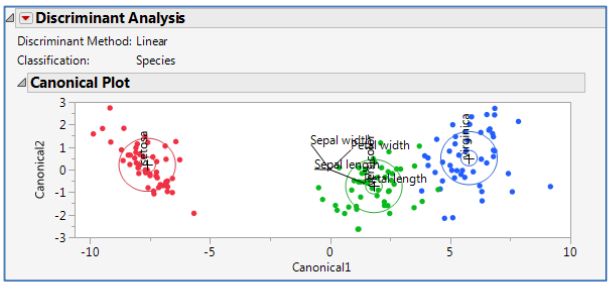
Discriminant Analysis

Iris.jmp (Help > Sample Data Folder)



1. From an open JMP® data table, select **Analyze > Multivariate Methods > Discriminant**.
2. Select one or more continuous variables from **Select Columns**, and click **Y, Covariates** (continuous variables have blue triangles).
3. Click on a categorical variable from **Select Columns**, and click **X, Categories** (nominal variables have red bars, ordinal variables have green bars).
4. Click **OK.**

   By default, JMP displays the **Canonical Plot** and **Discriminant Scores**.



- The **Canonical Plot** shows the points and multivariate least-squares means on the first two canonical variables that best separate the groups.
- The **Biplot Rays** on the Canonical Plot indicate the directions of the predictors in the canonical space.
- The **Discriminant Scores** report shows information used to classify each row in the data table.
- The **Score Summaries** report provides a summary of the misclassifications and tables that tabulates the number and percent of correctly and incorrectly classified cases.

Score Summaries

Source	Count	Number Misclassified	Percent Misclassified
Training	150	3	2.00000

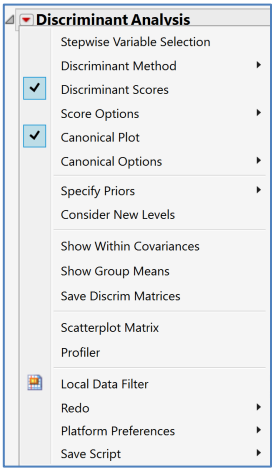
Training

Actual Species	Predicted Count setosa	versicolor	virginica
setosa	50	0	0
versicolor	0	48	2
virginica	0	1	49

Actual Species	Predicted Rate setosa	versicolor	virginica
setosa	1.000	0.000	0.000
versicolor	0.000	0.960	0.040
virginica	0.000	0.020	0.980

Tips:

- JMP provides **Stepwise Variable Selection** and three **Discriminant Methods** (**Linear**, **Quadratic** and **Regularized**).
- Click on the **red triangle** to select Stepwise Variable Selection, change the discriminant method, show canonical details, specify prior probabilities, save results, customize plots or select other options.
- If a validation column is specified in the model dialog, the Score Summaries table will include counts and misclassification rates for the training, validation (and test) partitions.



Visit **Multivariate Methods > Discriminant Analysis** in **JMP Help** to learn more.