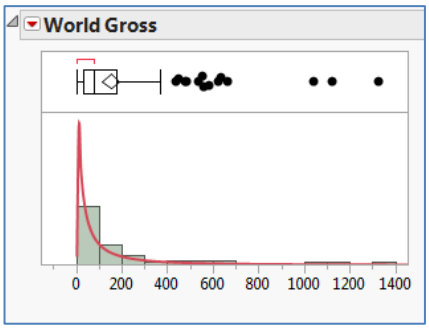
# Fitting Distributions

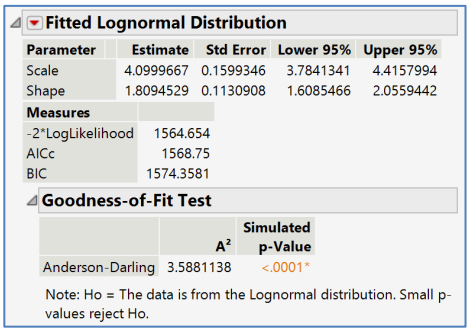
This guide provides information on fitting various continuous or discrete distributions to data.

## Fitting One Continuous Distribution

1. From an open JMP data table, select **Analyze > Distribution**.
2. Select one or more continuous variables from **Select Columns**, click **Y, Columns**, then click **OK**.
3. Select **Continuous Fit** from the red triangle for the variable and select a distribution (LogNormal was selected in the example below).
4. In the resulting fitted distribution output, click on the red triangle and select **Goodness of Fit** (shown) or **Diagnostic Plot** to assess the fit of the distribution.

Hollywood Movies.jmp (Help > Sample Data Folder)



**Fitted Lognormal Distribution**

| Parameter | Estimate | Std Error | Lower 95% | Upper 95% |
|---|---|---|---|---|
| Scale | 4.0999667 | 0.1599346 | 3.7841341 | 4.4157994 |
| Shape | 1.8094529 | 0.1130908 | 1.6085466 | 2.0559442 |

| Measures | |
|---|---|
| -2*LogLikelihood | 1564.654 |
| AICc | 1568.75 |
| BIC | 1574.3581 |

**Goodness-of-Fit Test**

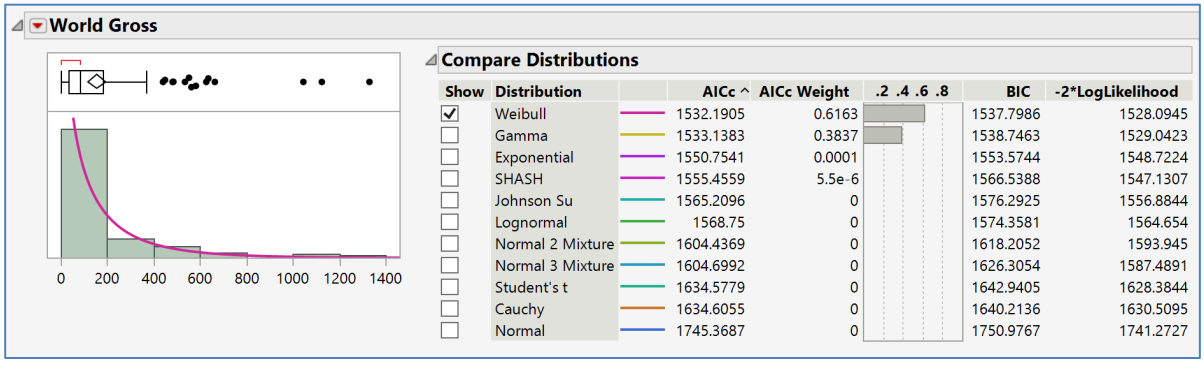
| | $A^2$ | Simulated p-Value |
|---|---|---|
| Anderson-Darling | 3.5881138 | <.0001* |

Note: Ho = The data is from the Lognormal distribution. Small p-values reject Ho.

The small *p*-value suggest that the LogNormal Distribution does not provide good fit to the data.

## Fitting All Continuous Distributions

Select **Continuous Fit**, then **Fit All** from the red triangle for the variable. JMP will compare available continuous distributions. Note: The distribution with the lowest AIC value provides the best fit to the data. Goodness of Fit tests can be performed by selecting **Goodness of Fit** under the Red Triangle for the Fitted Distribution output.

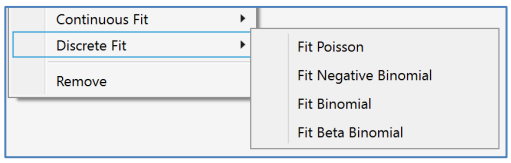



**Compare Distributions**

| Show | Distribution | AICc | AICc Weight | BIC | -2*LogLikelihood |
|---|---|---|---|---|---|
| ☑ | Weibull | 1532.1905 | 0.6163 | 1537.7986 | 1528.0945 |
| ☐ | Gamma | 1533.1383 | 0.3837 | 1538.7463 | 1529.0423 |
| ☐ | Exponential | 1550.7541 | 0.0001 | 1553.5744 | 1548.7224 |
| ☐ | SHASH | 1555.4559 | 5.5e-6 | 1566.5388 | 1547.1307 |
| ☐ | Johnson Su | 1565.2096 | 0 | 1576.2925 | 1556.8844 |
| ☐ | Lognormal | 1568.75 | 0 | 1574.3581 | 1564.654 |
| ☐ | Normal 2 Mixture | 1604.4369 | 0 | 1618.2052 | 1593.945 |
| ☐ | Normal 3 Mixture | 1604.6992 | 0 | 1626.3054 | 1587.4891 |
| ☐ | Student's t | 1634.5779 | 0 | 1642.9405 | 1628.3844 |
| ☐ | Cauchy | 1634.6055 | 0 | 1640.2136 | 1630.5095 |
| ☐ | Normal | 1745.3687 | 0 | 1750.9767 | 1741.2727 |

## Fitting Discrete Distributions

If the continuous variable contains only integer values, four discrete distributions are available under **Discrete Fit**.




Visit **Basic Analysis > Distributions > Options for Continuous Variables > Fit Distributions** in **JMP Help** to learn more