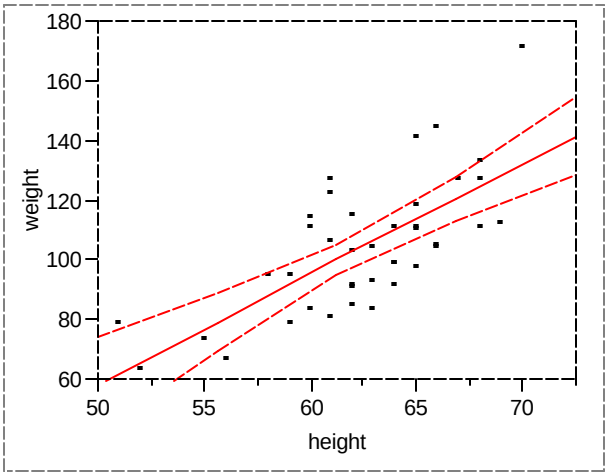
JMP INTRO Ò Lab Activities

(JILA Project)



NCSSM Statistics
Leadership Institute

Lee Kucera
leekucera@home.com

Susan Peters
Peterss@aol.com

Jeane Swaynos
Swaynos@aol.com

2001

JMP INTRO® Lab Activities

Introductory Teacher Notes

Why JMP INTRO?	SAS has made JMP INTRO available, at a reasonable price for high schools.
JMP-INTRO vs JMP	While it is not the full version of JMP, JMP INTRO covers all the topics from AP Statistics and more. One of the limitations of JMP INTRO is the size of the data files it can create (maximum 30 columns by 1000 rows). However, JMP INTRO can open JMP-IN files that are larger. Additional data sets in the JMP format can be downloaded from www.jmpdiscovery.com. See the teacher notes to the Lab Activity Hypothesis Testing – 2 Sample t-test, for more information.
Other data	Data can also be found on the World Wide Web. The Lab Activity Downloading Data from the Web has students download data from the DASL site on the web into JMP INTRO and make simple graphs from the data.
Format	Activities are either Word documents or Adobe PDF files so that teachers can modify them to fit their needs – add additional questions or directions for students, combine activities, and rewrite directions for other versions of JMP or even for other statistical software.
Order	Activities cover narrowly defined topics because the different textbooks used by AP Statistics teachers cover topics in different orders. The numbering of the activities is for organizational purposes only. You'll likely want to use the activities in the same order as your textbook covers them. All activities have a title descriptive of the statistical topic covered to make this easier. A correlation chart to two of the major AP Statistics textbooks is also included.
Lab vs Homework	While the activities can be done either in class or as outside assignments, the first few should probably be done in class if possible to assure that the students have mastered the basics of JMP INTRO.

JMP INTRO® Lab Activities
Introduction – Overview of Objectives

Finding Data on the Web

Gain familiarity with some of the basic operational tools of JMP INTRO.
Learn how to download data of the Internet into JMP INTRO.
Resize and label columns in JMP INTRO.
Create a word processing document, incorporating graphs from JMP INTRO.

Describing Numerical Data Graphically

Gain familiarity with some of the basic operational tools of JMP INTRO.
Use JMP INTRO to display a histogram, boxplot, stem and leaf plot, and summary statistics.
Create a word processing document, incorporating graphs and tables from JMP INTRO.

Describing Categorical Data Graphically

Gain familiarity with some of the basic operational tools of JMP INTRO.
Use JMP INTRO to display categorical data with a histogram, mosaic plot, table of frequencies and probabilities.
Use JMP INTRO to review how to display a histogram, boxplot, stem and leaf plot, and summary statistics.

Graphically Assessing Normality

Use the 68-95-99.7 rule to investigate normality
Use the Normality Plot to investigate normality

Least-Squares Regression

Gain familiarity with some of the basic operational tools of JMP INTRO.
Use JMP INTRO to display a scatterplot, least-squares regression line, and a scatterplot with least-squares regression line for grouped data.

Geometric Probability

The students will simulate the geometric probability using JMP INTRO.
They will further investigate how the size of the sample has an impact on how close we reach the true probability.

Sampling Variability

In this activity the student will investigate sampling variability and how it relates to the size of the sample.

Confidence Interval For a Proportion

Use JMP INTRO to display categorical data with a histogram.
Use JMP INTRO to calculate confidence intervals for a proportion using different confidence levels.

Confidence Interval For a Mean

Use JMP INTRO to display numeric data with a histogram.

Use JMP INTRO to calculate confidence intervals for a mean using different confidence levels.

Select, hide and exclude data to isolate the subjects of interest.

Hypothesis Testing – the *z*-test

Gain familiarity with some of the basic operational tools of JMP INTRO.

Use JMP INTRO to conduct a hypothesis test for a mean when the standard deviation is known.

Hypothesis Testing – the *t*-test

Gain familiarity with some of the basic operational tools of JMP INTRO.

Use JMP INTRO to conduct a hypothesis test for a mean when the standard deviation is unknown.

Hypothesis Testing – Two-Sample *t*-test

Gain familiarity with some of the basic operational tools of JMP INTRO.

Use JMP INTRO to conduct a hypothesis test for a comparison of two means.

Hypothesis Testing – Matched Pairs *t*-test

Gain familiarity with some of the basic operational tools of JMP INTRO.

Use JMP INTRO to conduct a hypothesis test for a comparison of two means for dependent samples (matched pairs).

Exploring Categorical Data

Use JMP INTRO to display a mosaic plot and contingency table for categorical data. Row and column percentages will also be found.

X^2 Goodness-of-Fit Test

Use JMP INTRO to figure expected values in a contingency table and run a chi-square goodness-of-fit test.

X^2 Test of Independence

Use JMP INTRO to figure expected values in a contingency table and run a chi-square test of independence.

One-proportion *z*-test Compared to X^2

The students will be able to do a proportion test on JMP INTRO .

The students will be able to read the print out from the data and compare the results to the TI-83 to the results in JMP INTRO.

Inference for Regression

Use JMP INTRO to conduct a hypothesis test for linear regression.

JMP INTRO® Lab Activities

Introduction - Textbook Correlation

Topic	YMM	POD
Finding Data on the Web	1 (or 5)	3 (or 2)
Describing Numerical Data Graphically	1	3
Describing Categorical Data Graphically	1	3
Graphically Assessing Normality	2	4
Least-Squares Regression	3	5
Geometric Probability	8	7
Sampling Variability	9	8
Confidence Interval For a Proportion	12	9
Confidence Interval For a Mean	11	9
Hypothesis Testing – the *z*-test	10	10
Hypothesis Testing – the *t*-test	11	10
Hypothesis Testing – Two-Sample *t*-test	11	11
Hypothesis Testing – Matched Pairs *t*-test	11	11
Exploring Categorical Data	4	12
X^2 Goodness-of-Fit Test	13	12
X^2 Test of Independence	13	12
One-proportion *z*-test Compared to X^2	13	12
Inference for Regression	14	13

YMM – *The Practice of Statistics* by Yates, Moore and McCabe
POD – *Introduction to Statistics and Data Analysis* by Peck, Olsen and Devore