Examples for each of the test pages:

**\*Z\*-Test – Means**

The average quiz test taking time for a 10 item test is 22.5 minutes, with a standard deviation of 10 minutes. My class of 25 students took 19 minutes on the test with a standard deviation of 5.

**\*Z\* Test - \*Z\***

A recent study suggested that students (*N* = 100) learning statistics improved their test scores with the use of visual aids (*Z* = 2.5, *SD* = 4).

**Single Sample \*t\* - Means**

A school has a gifted/honors program that they claim is significantly better than others in the country. The national average for gifted programs is a SAT score of 1250. The data is included at [GitHub](<https://github.com/doomlab/shiny-server/tree/master/MOTE/examples>). Example output from JASP, SPSS, and SAS are shown below.

\*\*JASP\*\*

![Single t JASP](https://raw.githubusercontent.com/doomlab/shiny-server/master/MOTE/examples/single%20t%20JASP.png)

\*\*SPSS\*\*

![Single t SPSS](https://raw.githubusercontent.com/doomlab/shiny-server/master/MOTE/examples/single%20t%20SPSS.png)

\*\*SAS\*\*  
![Single t SAS](<https://raw.githubusercontent.com/doomlab/shiny-server/master/MOTE/examples/single%20t%20SAS.PNG>)

**Single Sample \*t\* - \*t\***

A school has a gifted/honors program that they claim is significantly better than others in the country. The national average for gifted programs is a SAT score of 1250. The data is included at [GitHub](<https://github.com/doomlab/shiny-server/tree/master/MOTE/examples>). Example output from JASP, SPSS, and SAS are shown below.

\*\*JASP\*\*

![Single t JASP](https://raw.githubusercontent.com/doomlab/shiny-server/master/MOTE/examples/single%20t%20JASP.png)

\*\*SPSS\*\*

![Single t SPSS](https://raw.githubusercontent.com/doomlab/shiny-server/master/MOTE/examples/single%20t%20SPSS.png)

\*\*SAS\*\*  
![Single t SAS](<https://raw.githubusercontent.com/doomlab/shiny-server/master/MOTE/examples/single%20t%20SAS.PNG>)

**Dependent \*t\* Averages – Means**

In a study to test the effects of science fiction movies on people's belief in the supernatural, seven people completed a measure of belief in the supernatural before and after watching a popular science fiction movie. Participants' scores are shown with high scores indicating high levels of belief. The data is included at [GitHub](<https://github.com/doomlab/shiny-server/tree/master/MOTE/examples>). Example output from JASP, SPSS, and SAS are shown below.

\*\*JASP\*\*

![Dependent t JASP](https://raw.githubusercontent.com/doomlab/shiny-server/master/MOTE/examples/dependent%20t%20JASP.png)

\*\*SPSS\*\*

![Dependent t SPSS](https://raw.githubusercontent.com/doomlab/shiny-server/master/MOTE/examples/dependent%20t%20SPSS.png)

\*\*SAS\*\*  
![Dependent t SAS](https://raw.githubusercontent.com/doomlab/shiny-server/master/MOTE/examples/dependent%20t%20SAS.PNG)

**Dependent \*t\* Differences – Means**

In a study to test the effects of science fiction movies on people's belief in the supernatural, seven people completed a measure of belief in the supernatural before and after watching a popular science fiction movie. Participants' scores are shown with high scores indicating high levels of belief. The data is included at [GitHub](<https://github.com/doomlab/shiny-server/tree/master/MOTE/examples>). Example output from JASP, SPSS, and SAS are shown below.

\*\*JASP\*\*

![Dependent t JASP](https://raw.githubusercontent.com/doomlab/shiny-server/master/MOTE/examples/dependent%20t%20JASP.png)

\*\*SPSS\*\*

![Dependent t SPSS](https://raw.githubusercontent.com/doomlab/shiny-server/master/MOTE/examples/dependent%20t%20SPSS.png)

\*\*SAS\*\*  
![Dependent t SAS](https://raw.githubusercontent.com/doomlab/shiny-server/master/MOTE/examples/dependent%20t%20SAS.PNG)

**Dependent \*t\* Repeated Measures**

In a study to test the effects of science fiction movies on people's belief in the supernatural, seven people completed a measure of belief in the supernatural before and after watching a popular science fiction movie. Participants' scores are shown with high scores indicating high levels of belief. The data is included at [GitHub](<https://github.com/doomlab/shiny-server/tree/master/MOTE/examples>). Example output from JASP, SPSS, and SAS are shown below.

\*\*JASP\*\*

![Dependent t JASP](https://raw.githubusercontent.com/doomlab/shiny-server/master/MOTE/examples/dependent%20t%20JASP.png)

\*\*SPSS\*\*

![Dependent t SPSS](https://raw.githubusercontent.com/doomlab/shiny-server/master/MOTE/examples/dependent%20t%20SPSS.png)

\*\*SAS\*\*  
![Dependent t SAS](https://raw.githubusercontent.com/doomlab/shiny-server/master/MOTE/examples/dependent%20t%20SAS.PNG)

**Independent \*t\* - Means**

A forensic psychologist conducted a study to examine whether being hypnotized during recall affects how well a witness can remember facts about an event. Eight participants watched a short film of a mock robbery, after which each participant was questioned about what he or she had seen. The four participants in the experimental group were questioned while they were hypnotized and gave 14, 22, 18, and 17 accurate responses. The four participants in the control group gave 20, 25, 24, and 23 accurate responses. The data is included at [GitHub](<https://github.com/doomlab/shiny-server/tree/master/MOTE/examples>). Example output from JASP, SPSS, and SAS are shown below.

\*\*JASP\*\*

![Independent t JASP](https://raw.githubusercontent.com/doomlab/shiny-server/master/MOTE/examples/independent%20t%20JASP.png)

\*\*SPSS\*\*

![Independent t SPSS](https://raw.githubusercontent.com/doomlab/shiny-server/master/MOTE/examples/independent%20t%20SPSS.png)

\*\*SAS\*\*  
![Independent t SAS](https://raw.githubusercontent.com/doomlab/shiny-server/master/MOTE/examples/independent%20t%20SAS.PNG)

**Independent \*t\* - \*t\***

A forensic psychologist conducted a study to examine whether being hypnotized during recall affects how well a witness can remember facts about an event. Eight participants watched a short film of a mock robbery, after which each participant was questioned about what he or she had seen. The four participants in the experimental group were questioned while they were hypnotized and gave 14, 22, 18, and 17 accurate responses. The four participants in the control group gave 20, 25, 24, and 23 accurate responses. The data is included at [GitHub](<https://github.com/doomlab/shiny-server/tree/master/MOTE/examples>). Example output from JASP, SPSS, and SAS are shown below.

\*\*JASP\*\*

![Independent t JASP](https://raw.githubusercontent.com/doomlab/shiny-server/master/MOTE/examples/independent%20t%20JASP.png)

\*\*SPSS\*\*

![Independent t SPSS](https://raw.githubusercontent.com/doomlab/shiny-server/master/MOTE/examples/independent%20t%20SPSS.png)

\*\*SAS\*\*  
![Independent t SAS](https://raw.githubusercontent.com/doomlab/shiny-server/master/MOTE/examples/independent%20t%20SAS.PNG)

**Independent \*t\* Delta – Means**

A forensic psychologist conducted a study to examine whether being hypnotized during recall affects how well a witness can remember facts about an event. Eight participants watched a short film of a mock robbery, after which each participant was questioned about what he or she had seen. The four participants in the experimental group were questioned while they were hypnotized and gave 14, 22, 18, and 17 accurate responses. The four participants in the control group gave 20, 25, 24, and 23 accurate responses. The data is included at [GitHub](<https://github.com/doomlab/shiny-server/tree/master/MOTE/examples>). Example output from JASP, SPSS, and SAS are shown below.

\*\*JASP\*\*

![Independent t JASP](https://raw.githubusercontent.com/doomlab/shiny-server/master/MOTE/examples/independent%20t%20JASP.png)

\*\*SPSS\*\*

![Independent t SPSS](https://raw.githubusercontent.com/doomlab/shiny-server/master/MOTE/examples/independent%20t%20SPSS.png)

\*\*SAS\*\*  
![Independent t SAS](https://raw.githubusercontent.com/doomlab/shiny-server/master/MOTE/examples/independent%20t%20SAS.PNG)

**Independent \*t\* g – Means**

A forensic psychologist conducted a study to examine whether being hypnotized during recall affects how well a witness can remember facts about an event. Eight participants watched a short film of a mock robbery, after which each participant was questioned about what he or she had seen. The four participants in the experimental group were questioned while they were hypnotized and gave 14, 22, 18, and 17 accurate responses. The four participants in the control group gave 20, 25, 24, and 23 accurate responses. The data is included at [GitHub](<https://github.com/doomlab/shiny-server/tree/master/MOTE/examples>). Example output from JASP, SPSS, and SAS are shown below.

\*\*JASP\*\*

![Independent t JASP](https://raw.githubusercontent.com/doomlab/shiny-server/master/MOTE/examples/independent%20t%20JASP.png)

\*\*SPSS\*\*

![Independent t SPSS](https://raw.githubusercontent.com/doomlab/shiny-server/master/MOTE/examples/independent%20t%20SPSS.png)

\*\*SAS\*\*  
![Independent t SAS](https://raw.githubusercontent.com/doomlab/shiny-server/master/MOTE/examples/independent%20t%20SAS.PNG)

**Independent Proportions**

Several researchers were examining the data on the number of students who retake a course after they receive a D, F, or withdraw from the course. They randomly sampled form a large university two groups of students: traditional (less than 25 years old) and non-traditional (25 and older). Each group included 100 participants. The traditional group showed about 25% of students who would retake a course, while the non-traditional group showed about 35% would retake the course.

**Generalized Omega – RM**

A health psychologist recorded the number of close inter-personal attachments of 45-year-olds who were in excellent, fair, or poor health. People in the Excellent Health group had 4, 3, 2, and 3 close attachments; people in the Fair Health group had 3, 5, and 8 close attachments; and people in the Poor Health group had 3, 1, 0, and 2 close attachments. The data is included at [GitHub](<https://github.com/doomlab/shiny-server/tree/master/MOTE/examples>). Example output from JASP, SPSS, and SAS are shown below.

\*\*JASP\*\*

![BN ANOVA 1 JASP](https://raw.githubusercontent.com/doomlab/shiny-server/master/MOTE/examples/bn%20anova%20JASP.png)

\*\*SPSS\*\*

![BN ANOVA 1 SPSS](https://raw.githubusercontent.com/doomlab/shiny-server/master/MOTE/examples/bn%20anova%20SPSS.png)

\*\*SAS\*\*  
![BN ANOVA 1 SAS](<https://raw.githubusercontent.com/doomlab/shiny-server/master/MOTE/examples/bn%20anova%20SAS.PNG>)

**Chi-square – V**

Individuals were polled about their number of friends (low, medium, high) and their number of kids (1, 2, 3+) to determine if there was a relationship between friend groups and number of children, as we might expect that those with more children may have less time for friendship maintaining activities. The data is included at [GitHub](<https://github.com/doomlab/shiny-server/tree/master/MOTE/examples>). Example output from JASP, SPSS, and SAS are shown below.

\*\*JASP\*\*

![Chi-square JASP](https://raw.githubusercontent.com/doomlab/shiny-server/master/MOTE/examples/chisq%20JASP.png)

\*\*SPSS\*\*

![Chi-square SPSS](https://raw.githubusercontent.com/doomlab/shiny-server/master/MOTE/examples/chisq%20SPSS.png)

\*\*SAS\*\*  
![Chi-square SAS](<https://raw.githubusercontent.com/doomlab/shiny-server/master/MOTE/examples/chisq%20SAS.PNG>)

**Chi-square – Odds**

A health psychologist was interested in the rates of anxiety in first generation and regular college students. They polled campus and found the following data:

| | First Generation | Regular |

|--------------|------------------|---------|

| Low Anxiety | 10 | 50 |

| High Anxiety | 20 | 15 |

(note, no pictures, cut the table in like that and it should render as a cute little table).

All data files and pictures can be found here:

<https://github.com/doomlab/shiny-server/tree/master/MOTE/examples>

You can click on a picture, right click 🡪 copy image location to find the link for the pictures.

For example: <https://raw.githubusercontent.com/doomlab/shiny-server/master/MOTE/examples/bn%201%20ANOVA%20JASP.png>

On these pages, we will need to check to make sure the pictures all match each other (like F is the same, etc.). You can expand these as necessary for them to make more sense.

|  |  |  |
| --- | --- | --- |
| epsilon.full.SS.R | Can work for any of them, but mostly BN one way | Biggest issue is that you have to have sst which is hard for RM and not really normally used for when there is more than one IV |
| eta.F.R | All designs, pick one? | Mostly people would use this one if you only had F values or if you wanted full eta, we should put a note how it’s partial if you have more than one IV |
| eta.full.SS.R | Can work for any of them, but mostly BN one way | Biggest issue is that you have to have sst which is hard for RM and not really normally used for when there is more than one IV |
| eta.partial.SS.R | Any of them | No real considerations necessary here. |
| ges.partial.SS.mix.R | Two way mix design | No real considerations necessary here. |
| ges.partial.SS.rm.R | Two way RM designs | No real considerations necessary here. |
| omega.F.R | All designs, pick one? | Mostly people would use this one if you only had F values or if you wanted full eta, we should put a note how it’s partial if you have more than one IV |
| omega.full.SS.R | Can work for any of them, but mostly BN one way | Biggest issue is that you have to have sst which is hard for RM and not really normally used for when there is more than one IV |
| omega.gen.SS.rm.R | Either mix or two way RM designs | No real considerations here. |
| omega.partial.SS.bn.R | Two way BN designs. | No real consideration here. |
| omega.partial.SS.rm.R | Either mix or two way RM designs | No real considerations here. |

An idea for the shiny server page:

A table with all the functions and formulas and talk about ones that reduce to other ones.

Anything that’s BN One-way ANOVA:

A health psychologist recorded the number of close inter-personal attachments of 45-year-olds who were in excellent, fair, or poor health. People in the Excellent Health group had 4, 3, 2, and 3 close attachments; people in the Fair Health group had 3, 5, and 8 close attachments; and people in the Poor Health group had 3, 1, 0, and 2 close attachments.

RM one way ANOVA:

Participants were tested over several days to measure variations in their pulse given different types of stimuli. One stimulus was a neutral picture (like a toaster), while other stimuli were cute/happy pictures (puppies, babies), and negative stimuli (mutilated faces, pictures of war). Where there differences in pulse for each participant across the stimuli?

BN two way ANOVA:

We looked at two years worth of athletic spending data (treating each receipt and years as separate between subjects events) for four different sports. Are there differences across sports and years in spending?

(you know maybe there’s a way to rework this one so it’s a bit more obviously between subjects?)

RM two way ANOVA:

In this experiment people were given word pairs to rate based on their “relatedness”. How many people out of a 100 would put LOST-FOUND together? Participants were given pairs of words and asked to rate them on how often they thought 100 people would give the second word if shown the first word. The strength of the word pairs was manipulated through the actual rating (forward strength: FSG) and the strength of the reverse rating (backward strength: BSG). Is there an interaction between FSG and BSG when participants are estimating the relation between word pairs?

Mix two way ANOVA

Given previous research, we know that backward strength in free association tends to increase the ratings participants give when you ask them how many people out of 100 would say a word in response to a target word (like Family Feud). This result is tied to people’s overestimation of how well they think they know something, which is bad for studying. So, we gave people instructions on how to ignore the BSG. Did it help? Is there an interaction between BSG and instructions given?