

DESIGNEXPERT

VERSION 13

Cutting Edge Tools Unveiled!

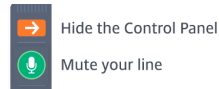
Martin Bezener, PhD

President & Chief Technology Officer

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February 2021

Making the most of this learning
opportunity



To prevent audio disruptions, all attendees will be muted.

Questions can be posted in the **Question** area. If they are not addressed during the webinar, I will reply via email afterwards.

Questions may also be sent to stathelp@statease.com. Please provide your company name and, if you are using Design-Expert, the serial number (found under Help, About).

Note: The slides and a recording of this webinar will be posted on the Webinars page of the Stat-Ease website within a few days.



← Just Released
January 4, 2021!

Mixture Design for Optimal Formulations
Find the sweet spot and optimize your formulations by mastering mixture designs in this 1-week (4 half-day sessions) instructor-led online course. 9:00am - 12:30pm (USA Central Time)

← March 22-25

Modern DOE for Process Optimization
Optimize your processes by mastering factorial and response surface designs in this 1-week (5 half-day sessions) instructor-led online course. 9:00am - 12:30pm (USA Central Time)

Live Web Mixture DOE Workshops →

← April 12-16

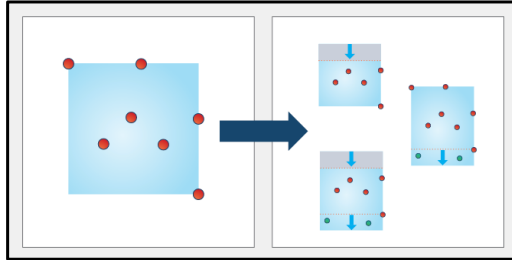
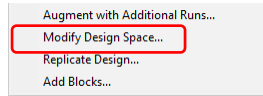


- **Feature Overview**
- **Feature Deep Dives and Demos**
 - Modify Design Space Wizard
 - Import Data Set
 - Poisson Regression
 - Multiple Analyses
 - Round Columns
- **Wrap Up**

Feature Overview



Feature: Modify Design Space Wizard



Expand, shrink, or shift your experimental design space to allow for easier iterative experimentation.

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Feature Overview



Feature: Import Data Set

Run	Factor 1 A:Temperature	Factor 2 B:Time	Response 1 Conversion	Response 2 Quality
1	200	3	89.83	0.99
2	350	2	103.1	0.74
3	350	2	106.1	0.22
4	500	3	99.21	0.01
5	350	2	100.12	0.88
6	350	3.41	108.82	0.2
7	350	0.59	98.15	0.37
8	500	1	105.49	0.17
9	137.87	2	99	0.36
10	350	2	102.21	0.32
11	350	2	99.02	0.12
12	200	1	99.94	0.16
13	562.13	2	107.36	0.38

Import your existing data in just a few simple clicks!

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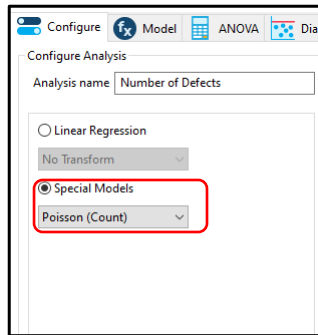
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Feature Overview



Feature: Poisson Regression

Use the power of Design-Expert 13 to analyze count data such as:



- Defects on a surface
- Number of bacteria colonies that grow after application of an antimicrobial solution
- Pulls needed to start a weed whacker after a new blended gasoline is formulated

Free Webinar Alert!

Making the Most from Measuring Counts

Presented by: Mark Anderson

Date: March 10, 2021

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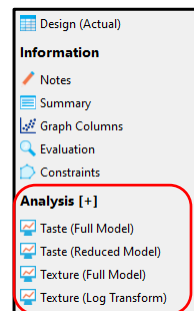
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Feature Overview



Feature: Multiple Analyses

Run	Component 1 A: Sugar grams	Component 2 B: Flour grams	Component 3 C: Butter grams
1	26.6667	53.3333	20
2	26.6667	53.3333	20
3	20	70	10
4	20	80	0
5	40	50	10
6	30	70	0
7	26.6667	53.3333	20
8	20	80	0
9	40	60	0
10	30	60	10
11	40	60	0
12	40	40	20
13	40	40	20



Easily analyze your responses in more than one way!

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Feature Overview



Feature: Round Columns



Run	Component 1 A.Sugar grams	Component 2 B:Flour grams	Component 3 C:Butter grams	Response 1 Taste
1	40	40	20	
2	34.927	65.073	0	
3	34.927	65.073	0	
4	30.7396	58.6088	10.6517	
5	20	66.0693	13.9307	
6	40	40	20	
7	30.9328	49.0672	20	
8	25.3495	70.489	4.16154	
9	20	66.0693	13.9307	
10	40	49.3749	10.6251	
11	34.927	65.073	0	
12	20	66.0693	13.9307	
13	20	80	0	

Round off your factors and components to a precision level that is feasible in just a few clicks!

Run	Component 1 A.Sugar grams	Component 2 B:Flour grams	Component 3 C:Butter grams	Response 1 Taste
1	40	40	20	
2	34.9	65.1	0	
3	34.9	65.1	0	
4	30.7	58.6	10.7	
5	20	66.1	13.9	
6	40	40	20	
7	30.9	49.1	20	
8	25.3	70.5	4.2	
9	20	66.1	13.9	
10	40	49.4	10.6	
11	34.9	65.1	0	
12	20	66.1	13.9	
13	20	80	0	

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Feature Overview



Other Features

- **New plots** in Graph Columns



- **Edit Constraints** after analysis
- Easier, more intuitive user interface

Run	Component 1 A.Sugar grams	Component 2 B:Flour grams	Component 3 C:Butter grams	Response 1 Taste	Response 2 Texture
1	26.6667	53.3333	20	99.234	99.4395
2	26.6667	53.3333	20	99.6187	104.304
3	20	70	10	100.245	96.4069
4	20	80	0	112.156	103.026
5	40	50	10	95.253	96.9425

- **Dark-mode friendly** color scheme

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The **Modify Design Space Wizard** allows you to change the shape of your experimental design space. This is typically done when the initial space is chosen to be too small or too large. This is a two-step procedure:

Step 1: Choose how to modify the design space

- Expand the design space
- Shrink the design space
- Shift the design space

Step 2: Add additional runs to the new design space.



Feature Demo

We'll also look at how to analyze a response in DX13!

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You may want to use the powerful tools of Design-Expert to analyze data you've already collected. **Import Data Set** allows you to quickly move table data into Design-Expert 13.

Step 1: Copy the data from the original source (e.g. Microsoft Excel).

Step 2: Select **Import Data** after you open Design-Expert 13.

Step 3: Eliminate unnecessary rows and columns.

Step 4: Designate the properties of each row and column.

Step 5: Finish!



Feature Demo

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Poisson Regression is a tool for analyzing count data (e.g. 0, 1, 2, 3, 4).

Ordinary least squares regression assumes the data at each point in the design space is normally distributed (bell-shaped). This will not be true if the response you are measuring is a count.

Step 1: Recognize that you are measuring count data

Step 2: Choose Poisson Regression in the DX13 Analysis

Step 3: Analyze and interpret the data



Feature Demo

Agenda



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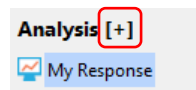
Multiple Analyses



When analyzing a response, you may want to analyze it a few different ways and compare. For example, you may want to compare ANOVA tables with and without a response transformation. This is now possible to do in Design-Expert:

Step 1: Analyze your response

Step 2: Click [+] to start a new analysis. It's that simple!



Feature Demo

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Most design building algorithms do not consider precision constraints. You may see a run where you need to set the temperature to 45.9892 degrees, or keep something in an oven for 34.2532 minutes. These settings are unlikely to be feasible.

Step 1: Build your design

Step 2: Determine if the experimental runs are feasible.

Step 3: Use the **Round Columns** feature to round off columns to the appropriate precision (decimal places or significant digits).

Step 4: Evaluate the rounded design to ensure there are no major issues.



Feature Demo



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Here's a wrap up of the features we toured today:

- **Modify Design Space Wizard** – use to expand, shrink, or shift the design space, and fill with additional runs
- **Import Data Set** – bring in existing data quickly and easily
- **Poisson Regression** – analyze count data (0, 1, 2, 3...)
- **Multiple Analyses** – analyze your data in different ways and store the analyses for easy comparisons
- **Round Columns** – make your factor or mixture component settings feasible to perform
- **Other Features** – Edit Constraints, Box Plot, UI enhancements

Resources



New-User Intro to Design-Expert Software

Presented by: Richard Williams on Feb. 24, 2021

February 24
Updated for DX13!!

Making the Most from Measuring Counts

Presented by: Mark Anderson on March 10, 2021

March 10

Mixture Design for Optimal Formulations

Find the sweet spot and optimize your formulations by mastering mixture designs in this 1-week (4 half-day sessions) instructor-led online course. 9:00am - 12:30pm (USA Central Time)

March 22-25

April 12-16

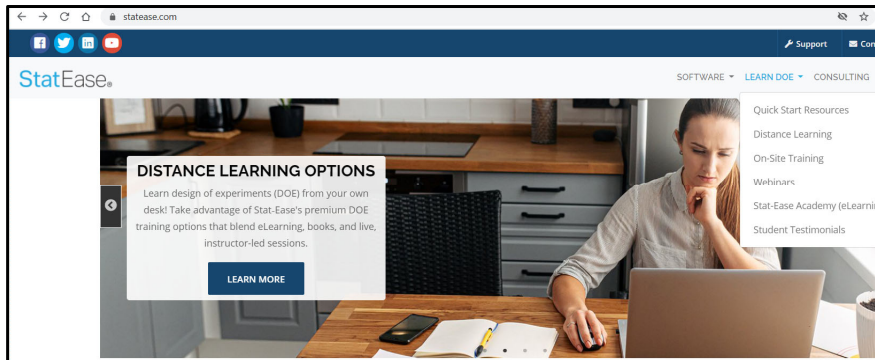
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Resources



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The image shows a slide with a white background and a black border. At the top, there are several overlapping, semi-transparent blue lines that create a sense of depth and movement. In the center, the StatEase logo is displayed, consisting of a blue arc above the text "StatEase" in a bold, sans-serif font, with "statistics made easy" in a smaller, lighter font below it. Underneath the logo is the tagline "Make the most from every experiment!SM" in a blue, italicized font. Below the tagline, the text "Thanks for listening!" is written in a bold, black font. At the bottom of the slide, the email address "martin@statease.com" is provided in a small, blue font.

StatEase
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Make the most from every experiment!SM

Thanks for listening!

martin@statease.com