



## V11 of Design-Expert® Software: The “What’s in It for Me” for Doing DOE

“Let no one think we can relax our efforts in research.”—Norman Borlaug, Nobel Prize speech (12/11/70)

### Rave reviews from the expert evaluators

- ✓ Modernized user interface (UI): ***“Nice—clean and fresh!”***
- ✓ Ability to display results as you wish: ***“I like the options to split and arrange the output screens.”***
- ✓ Improved statistical analysis: ***“I find the factorial center-point modeling for curvature effects greatly improved and very clear.”***
- ✓ Migration made easy for upgrading: ***“I like the new UI. Definite wow factor, but it still feels the same.”***

### What’s in it for You

Stat-Ease, Inc. welcomes you to version 11 (v11) of Design-Expert software (DX11) for design of experiments (DOE). Our programmer team code-named this major new release “Borlaug” in honor of the University of Minnesota agronomist whose research on high-yielding crops led to the Green Revolution that staved off world starvation. Use DX11, now operating on Apple macOS as well as Microsoft Windows, to optimize your product or process. It provides many powerful statistical tools, such as: Two-level factorial screening designs: *Identify the vital factors that affect your process or product so that you can make breakthrough improvements.*

- General factorial studies: *Discover the best combination of categorical factors, such as source versus type of raw material supply.*
- Response surface methods (RSM): *Find the optimal process settings to achieve peak performance.*
- Mixture design techniques: *Discover the ideal recipe for your product formulation.*
- Combinations of process factors, mixture components, and categorical factors: *Mix your cake (with different ingredients) and bake it too!*
- Design and analysis of split plots: *Make your experiment far easier by grouping hard-to-change process factors and/or mixture components.*

Your Design-Expert program offers rotatable 3D plots to easily view response surfaces from all angles. Use your mouse to set flags and explore the contours on interactive 2D graphs. Our numerical optimization function finds maximum desirability for dozens of responses simultaneously!

You’ll find a wealth of statistical details within the program itself via various Help screens. Take advantage of this information gold-mine that is literally at your fingertips. Also, do not overlook the helpful annotations provided on all reports.

For a helpful collection of checklists and ‘cheat sheets,’ see the *Handbook for Experimenters*. It’s free to all registered users. Furthermore, for a quick start on design and analysis of experiments—keeping things simple and fun (unlike most other statistics texts), we recommend you read:

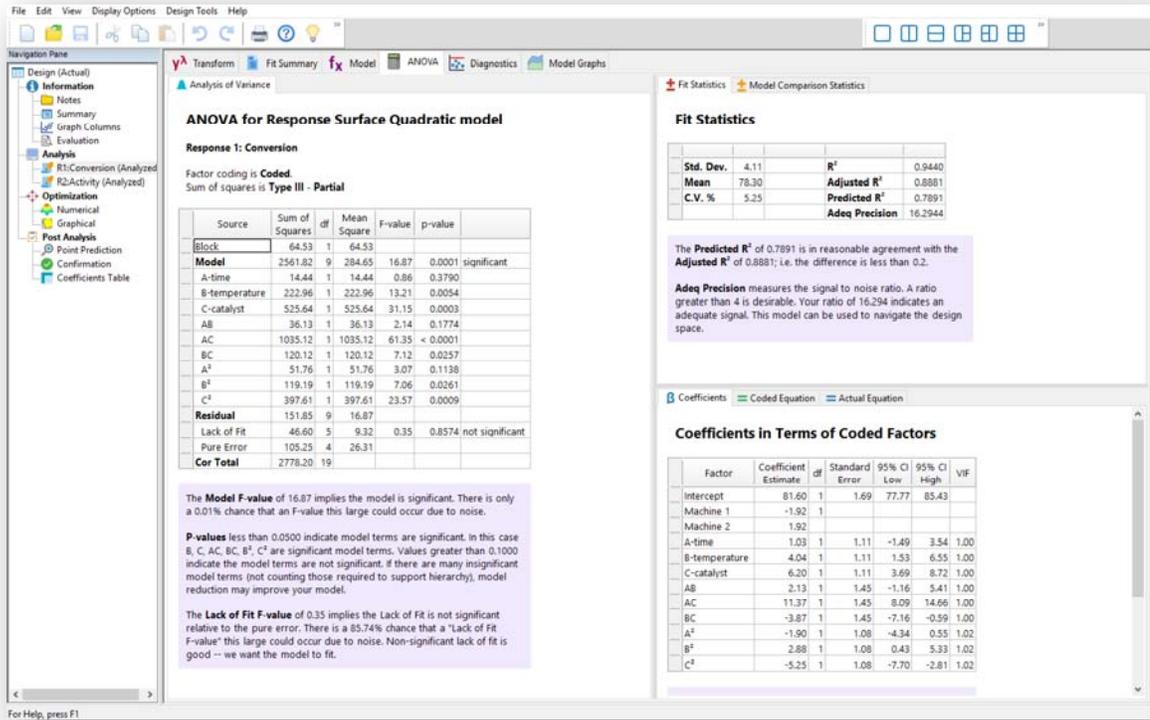
- *DOE Simplified: Practical Tools for Effective Experimentation* (now in 3<sup>rd</sup> Edition!),
- *RSM Simplified: Optimizing Processes Using Response Surface Methods for Design of Experiments*. (now in 2<sup>nd</sup> Edition!)
- *Formulation Simplified: Finding the Sweet Spot via Design and Analysis of Experiments with Mixtures* (2018)

They are available for purchase via the Publications menu at [www.statease.com](http://www.statease.com), via Amazon, or directly from the publisher—Taylor&Francis/CRC/Productivity Press (New York, NY).

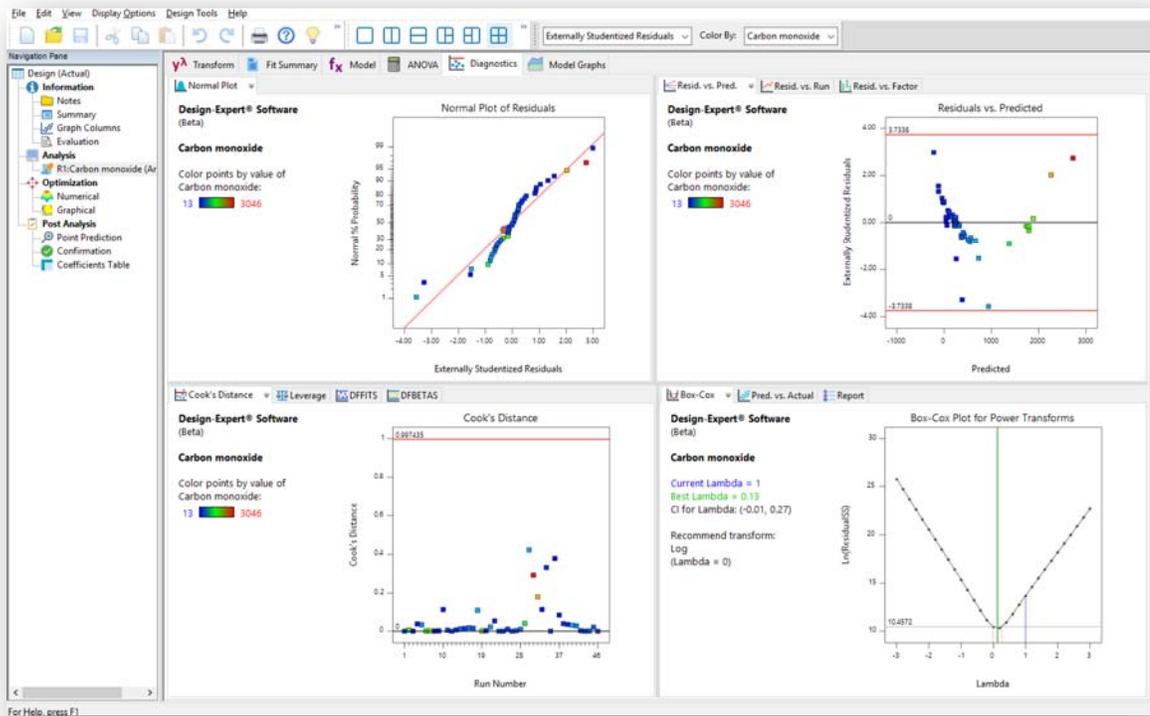
### What’s New

Those of you who’ve used previous versions of Design-Expert software will be impressed with the many improvements in Version 11. Do not hold off: Upgrade now! Here are the highlights:

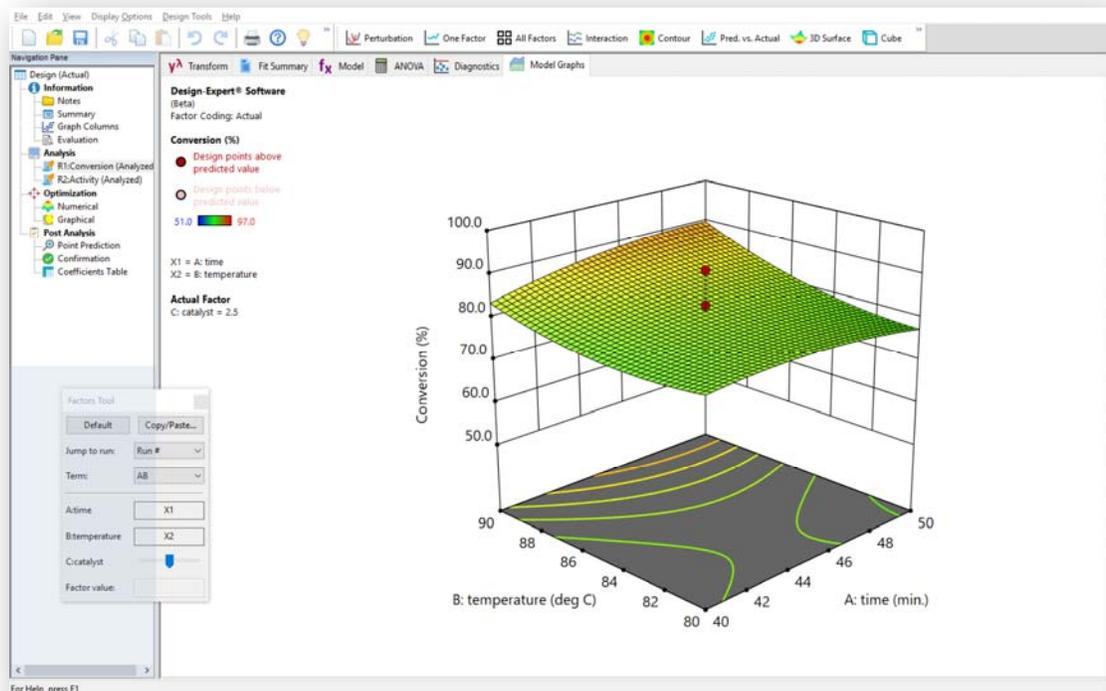
- Easily configured multiple windows: *At the touch of a button arrange your view as you like it! For example, see a three-way display below for various tables from DX11's analysis of variance report.*



- Diagnostics graphs provided in multigraph view: *Take advantage of side-by-side and up-down comparisons via the four-window option on the pane-configuration tool.*



- Toolboxes can be docked and resized: *Move controls, for example the tool that controls factor setting in this 3D response surface, to most convenient locations!*



## Many more new features in DX11

### Graphics

- ❖ Better DPI-scaling for high-resolution monitors.
- ❖ Graph lines anti-aliased (smoothed) and thicker.
- ❖ Ability to remove all contours from a surface graph.

### Interface

- ❖ New icons.
- ❖ More tooltips (hover help).
- ❖ Improved internationalization including Unicode support.
- ❖ Handy Reset Toolbox option to repositions View to original layout.
- ❖ Reports have been split into separate tabs that can be resized and rearranged.
- ❖ Ctrl-scrollwheel zooms in/out of reports, increasing/decreasing the font size.
- ❖ New Design Properties tool for design layout facilitates interactive editing of row and column attributes.

### Designs

- ❖ Can now modify discrete levels in existing design.
- ❖ Split-plot designs can be built with I or A-optimal criteria.
- ❖ Optimal bootstrap parameters have been tweaked to improve performance.
- ❖ Split-plot factorials design sizes are now more easily specified by number of groups and group size.

### Modeling

- ❖ “Remove/Add Curvature” button for factorials with center points.
- ❖ The ANOVA for factorials with center points streamlined making it far more intuitive and flexible.

### Analysis

- ❖ Many tables in reports are now sortable.

- ❖ The maximum model order can now be limited to speed up calculations for large designs.

### **Confirmation**

- ❖ Run entry (and review) facilitated by being moved into its own table.
- ❖ Improved ability to confirm models at multiple points—made easy by tabs.

### **Simulation**

- ❖ The response generator expanded with many new functions and constants.

These are only the highlights of the comprehensive remodeling of Design-Expert software. Take advantage of the crafting of thousands of ticketed tasks by our programming team. Give v11 a try! We feel sure you will like it.