ORIGIN® 2019b
Graphing & Analysis

Comparison of Origin and OriginPro

OriginPro provides all of the features of Origin, plus additional analysis tools and capabilities. The following tables provide comparisons between Origin and OriginPro in such areas as curve fitting, peak analysis, statistics, signal analysis, and image handling.*

Curve Fitting		Origin	Originpro
LINEAR AND POLYNOMIAL FITTING	Linear Regression	✓	✓
	Linear Fit with X Error		✓
	Confidence Ellipse for Linear Fit	✓	✓
	Polynomial Regression	✓	✓
	Multiple Linear Regression	✓	✓
	Partial Leverage Plots in Multiple Regression	✓	✓
	Residual Analysis	✓	✓
NONLINEAR FITTING	Fitting Multiple Datasets	✓	✓
	Built-in Fitting Function and User-defined Fitting Function	✓	✓
	Parameter Initialization and Derived Parameter Definition	✓	✓
	Bounds and Constraints	✓	✓
	Weighted Fitting	✓	✓
	Fitting with Y Error	✓	✓
	Fitting with X and Y Errors (Orthogonal Regression)		✓
	Global Fit with Parameter Sharing	✓	✓
	Global Fit with Parameter Sharing among Different Functions		✓
	Fitting Replica Data	✓	✓
	Residual Analysis	✓	✓
	Fitting with Implicit Functions (Orthogonal Distance Regression)		✓
	Fitting Comparison		✓
	Fit and Rank Multiple Models		✓
	Surface Fitting		✓

Mathematics		Origin	OriginPro
SIMPLE MATHEMATICS OPERATIONS	Simple Mathematics Operations on or Between Datasets	✓	✓
	Set Cell, Column or Matrix Values by Using Mathematics Operations	✓	✓
	Normalization	✓	✓
INTERPOLATION AND EXTRAPOLATION	1D Interpolation and Extrapolation	✓	✓
	Interpolation and Extrapolation of Y From X	✓	✓
	Trace Interpolation on XY Data	✓	✓
	Trace Interpolation on XYZ Data	✓	✓
	2D Interpolation and Extrapolation	✓	✓
	3D Interpolation	✓	✓
DIFFERENTIATION AND INTEGRATION	Numerical Differentiation	✓	✓
	1D Numerical Integration	✓	✓
	2D Volume Integration		✓
AREA CALCULATION	Polygon Area	✓	✓
	XYZ Surface Area		✓
	Matrix Surface Area		✓
OTHERS	Average Multiple Curves	✓	✓
	Inverse of a Matrix	✓	✓

*To view the complete list of comparison tables go to: originlab.com/ProductComparison

ADDITIVE
SOFT- & HARDWARE FÜR TECHNIK & WISSENSCHAFT

Statistics		Origin	OriginPro
DESCRIPTIVE STATISTICS	Basic Descriptive Statistics	✓	✓
	1D and 2D Frequency Counts	✓	✓
	Correlation Coefficient		✓
	Partial Correlation Coefficient		✓
	Cross Tabulation		✓
	Discrete Frequency	✓	✓
	Distribution Fit		✓
	Normality Test (Shaprio-Wilk, Lilliefors, Kolmogorov-Smirnov, Anderson-Darling, D'Agostino-K Squared, Chen-Shapro)	✓	✓
	Statistics Charts: Histogram, Box Chart, Scatter Matrix, QC Chart, Probability Plot, Q-Q Plot, and Pareto Chart	✓	✓
	Grubbs Test and Q-test to Detect Outliers	✓	✓
HYPOTHESIS TESTING	One Sample and Two-Sample t-Test, Pair-Sample t-Test	✓	✓
	Two Sample and Paired-Sample t-Test on Rows		✓
	One Sample and Two Sample Hypothesis Tests for Variance		✓
	One and Two-Proportion Test		✓
ANALYSIS OF VARIANCE	One Way ANOVA, Two Way ANOVA	✓	✓
	Three Way ANOVA		✓
	ANOVA: Mean Comparison (Tukey, Bonferroni , Scheffe, Dunn-Sidak, Fisher LSD, Holm-Bonferroni, Holm-Sidak)	✓	✓
	One Way and Two Way Repeated Measure ANOVA		✓
NONPARA-METRIC TESTS	Sign Test		✓
	Wilcoxon Test for One Sample and Paired Sample		✓
	Two Sample Kolmogorov-Smirnov Test		✓
	Mann-Whitney Test		✓
	Kruskal-Wallis ANOVA		✓
	Mood's Median Test		✓
	Friedman ANOVA		✓
MULTIVARIATE ANALYSIS	Principal Component Analysis		✓
	Cluster Analysis		✓
	Discrimininant Analysis		✓
	Canonical Discriminant Analysis		✓
	Partial Least Squares		✓
SURVIVAL ANALYSIS	Kaplan-Meier Estimator		✓
	Test Equality of Survival Functions (Log-Rank, Breslow and Tarone-Ware)		✓
	Cox Proportional Hazard Model		✓
	Weibull Fit		✓
POWER AND SAMPLE SIZE	One, Two and Paired-Sample t-Test, One Way ANOVA, One and Two-Proportion Test, One and Two -Variance Test		✓
ROC CURVE	ROC Curve		✓

Peak Analysis		Origin	OriginPro
PEAK ANALYSIS	Baseline Detection	✓	✓
	Baseline Subtraction	✓	✓
	Peak Finding	✓	✓
	Peak Integration	✓	✓
	Peak Fitting		✓
	Fit Baseline with Peaks		✓
	Fit Individual Peaks with Different Fitting Functions		✓
	Batch Peak Analysis		✓

Signal Analysis		Origin	OriginPro
SMOOTHING AND FILTERING	Smoothing using Savitzky-Golay Filter, Adjacent Averaging, FFT Filter, and Percentile Filter	✓	✓
	FFT Filters: Low Pass, Low Pass Parabolic, High Pass, Band Pass, Band Block, and Threshold	✓	✓
	IIR Filter Design		✓
FAST FOURIER TRANSFORM (FFT)	FFT with Basic Options	✓	✓
	2D FFT and 2D FFT Basic Filtering		✓
	Short-Time Fourier Transform (STFT)		✓
WAVELET ANALYSIS	Discrete Wavelet Transform (DWT) and Inverse Discrete Wavelet Transform (IDWT)		✓
	Wavelet Smoothing		✓
	Wavelet Denoising		✓
	Continuous Wavelet Transform (CWT)		✓
	Evaluation of Continuous Wavelet Function		✓
OTHERS	Convolution and Deconvolution	✓	✓
	Coherence		✓
	1D Correlation	✓	✓
	2D Correlation		✓
	Hilbert Transform		✓
	Signal Envelope		✓
	Signal Decimation		✓
	Rise and Fall Time Analysis		✓

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ADDITIVE
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Data Manipulation		Origin	OriginPro
REORGANIZATION	Sort Worksheet or Columns	✓	✓
	Stack and Unstack Columns	✓	✓
	Pivot Table	✓	✓
	Split and Append Worksheet	✓	✓
TRANSFORMATION	Converting XYZ Data to a Matrix	✓	✓
	Transpose Worksheet or Matrix	✓	✓
	Shrink or Expand a Matrix	✓	✓
EXTRACTION AND REDUCTION	Worksheet Query	✓	✓
	Reduce Duplicate X Data	✓	✓
	Reduce Data by Skipping Every N Points	✓	✓
	Reduce Data to Evenly Spaced X	✓	✓
	Reduce XY Data by Group	✓	✓
OTHERS	Find and Replace Numeric and Text Values	✓	✓
	Translate Curve Vertically or Horizontally	✓	✓
	Data Filter for Worksheets	✓	✓
	Select or Hide Columns in Worksheet by Column Label	✓	✓

Gadget		Origin	OriginPro
GADGETS	Surface Integration Gadget		✓
	Global Vertical Cursor Gadget Across Graphs	✓	✓
	Intersect Gadget	✓	✓
	Sigmoidal Fit Gadget	✓	✓
	Cluster Gadget		✓
	Quick Peaks Gadget	✓	✓
	Differentiate and Interpolate Gadget	✓	✓
	Quick Fit Gadget	✓	✓
	Rise Time Gadget		✓
	Integrate, FFT and Statistics Gadget	✓	✓

APPS		Origin	OriginPro
CURVE FITTING	Quantile Regression		✓
	Fit ODE		✓
	Speedy Fit		✓
	Global Fit with Multiple Functions		✓
	3D Smoother		✓
	Fit Convolution		✓
	Rank Models		✓
	Constrained Multiple Regression		✓
	Polynomial Surface Fit		✓
	Sequential Fit		✓
	Piecewise Fit		✓
	Enzyme Kinetics		✓
	General Linear Regression		✓
	Composite Spectrum Regression		✓
	Cyclic Voltammetry		✓
	Find a Fitting Funtction	✓	✓
	2D Smoother	✓	✓
	Simple Fit	✓	✓
	Compare Datasets	✓	✓
	Compare Linear Fit Parameters and Datasets	✓	✓
PEAK ANALYSIS	Gel Molecular Weight Analyzer		✓
	Global Peak Fit		✓
	Peak Deconvolution		✓
	Align Peaks	✓	✓
MATHEMATICS	Equations Solver		✓
	Concave Hull		✓
	Curvature Radius	✓	✓
	Tangent	✓	✓
	Tafel Extrapolation	✓	✓
	Distance Between Two Points	✓	✓
	Level Crossing	✓	✓
SIGNAL PROCESSING	Independent Component Analysis		✓
	Dynamic Time Warping		✓
	Simple pCLAMP Analyzer		✓
	Time-Frequency Analysis		✓
	Fourier Self-Deconvolution		✓
	FFT Examiner		✓
	White Noise	✓	✓

Note: New Apps are released frequently. Please visit **originlab.com/Apps** for the most up-to-date list.

ADDITIVE
SOFT- & HARDWARE FÜR TECHNIK & WISSENSCHAFT

APPS (con't)		Origin	OriginPro
STATISTICS	2D Correlation Spectroscopy Analysis		✓
	Change Point Analysis		✓
	Design of Experiments		✓
	Gaussian Mixture Models		✓
	Factor Analysis		✓
	Simple Time Series Analysis		✓
	Logistic Regression		✓
	Principal Component Analysis for Spectroscopy		✓
	Advanced Principal Component Analysis		✓
	Hotelling's T-squared Test		✓
	Post-hoc Analysis for Nonparametric Tests		✓
	Hurst Exponent	✓	✓
	Statistics Advisor	✓	✓
GRAPH CUSTOMIZATION	Color Editor	✓	✓
	LaTeX	✓	✓
	Google Map Import	✓	✓
	Maps Online	✓	✓
	Import Shapefile	✓	✓
	Colormap for Map Data	✓	✓
	Layer Stack Manager	✓	✓
GRAPHING	Means Plot		✓
	Manhattan Plot for GWAS (Genome-Wide Association Studies)		✓
	Image Stack Profile		✓
	Heat Map with Dendrogram		✓
	3D Wind Rose	✓	✓
	Isosurface	✓	✓
	Graph Maker	✓	✓
	Batch Plotting	✓	✓
	Voronoi-Diagram	✓	✓
	Chromaticity Diagram	✓	✓
	Paired Comparison Plot	✓	✓
	Kernel Density for Polar and Ternary	✓	✓
	3D Wall Profile	✓	✓
	Plot Sub MatrixView	✓	✓
	Log Histogram	✓	✓
	Zoomed Inset	✓	✓
	Treemap Plot	✓	✓

APPS (con't)		Origin	OriginPro
DATA PROCESSING	Hysteresis	✓	✓
	OPJ Packer	✓	✓
	Toolbar Maker	✓	✓
	Data Slicer	✓	✓
	OPJ Searcher	✓	✓
IMPORT AND EXPORT	Import Chem Data		✓
	Import SAS XPT Files	✓	✓
	Graph Publisher	✓	✓
	Import LSM	✓	✓
	Movie Creator	✓	✓
	HDF5 Browser	✓	✓
	Import Tektronix WFM Files	✓	✓
	Agilent MS Reader	✓	✓
	Send Graphs to Powerpoint	✓	✓
	Send Graphs to Word	✓	✓

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