

Growing Your Internal Talent: Resources from JMP® Education

Di Michelson, Principal Analytical Training Consultant



JMP Education



Ruth Hummel (manager)
Ph.D. in Statistics
10 years teaching and consulting
in academia and government
7 years at SAS and JMP



Monica Beals
Ph.D. in Ecology & Evolutionary
Biology
11 years teaching in academia
16 years at SAS and JMP



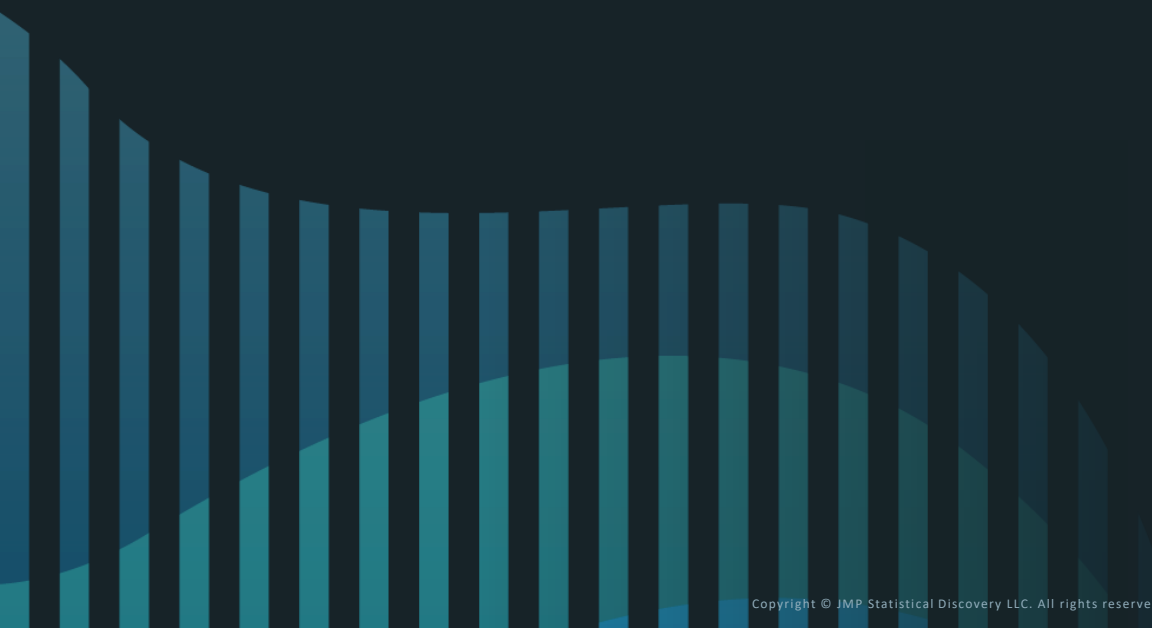
Di Michelson
Ph.D. in Statistics
20 years in semiconductor industry
12 years at SAS and JMP

40+ years teaching
experience!

What we currently offer

- On-demand self-paced e-learning
- Instructor-based education and training
- Access to course materials for your instructors
- Learn JMP space in the JMP User Community

Free e-learning



Available in 2022

- JMP: The JMP Scripting Language
- JMP: Statistical Process Control
- Statistical Thinking for Industrial Problem Solving (STIPS)

Coming in 2023

- JMP: A Case Study Approach to Data Exploration
- JMP: Statistical Decisions using ANOVA and Regression
- JMP: Custom Design of Experiments
- JMP: Classic Design of Experiments
- JMP: Stability Analysis

Example of e-learning from JMP: Statistical Process Control

X-MR Individual & Moving Range Chart of Y

location

dispersion

Time

UCL

LCL

$\hat{\sigma} = \frac{\overline{MR}}{d_2}$

$\theta \pm 3\sigma_a = \bar{x} \pm 3 \frac{\overline{MR}}{d_2}$

$y = \mu + batch + \dots$

two sources of common cause variability:
1. batch to batch
2. within batch

rational sampling

sampling at a frequency that detects process changes in a timely manner

⚠ samples taken too far apart will miss signals

⚠ samples taken too frequently can lead to autocorrelation

rational subgrouping

subgrouping so that special causes happen between subgroups, not within subgroups

⚠ use the principles for rational subgrouping

⚠ decide how to summarize the subgroups

average and range
average and standard deviation
another characteristic

1. Never knowingly subgroup unlike units together.

2. Minimize variability within each subgroup.

3. Maximize the opportunity for variation between the subgroups.

4. Average across noise, not across signals.

5. Treat the chart in accordance with the use of the data.

6. Establish standard sampling procedures.

What sampling plan should be used to calculate initial limits?

Example of e-learning from JMP: Statistical Process Control

The collage displays four screenshots from the JMP Software: Statistical Process Control e-learning course:

- Top Left:** A screenshot of the 'Individual Line Length - Control Chart Builder - JMP Pro' window. It shows a control chart with a blue shaded area under the curve, indicating a process shift. The y-axis is labeled 'Mean Length (mm)' and the x-axis is 'Run'.
- Top Right:** A screenshot of the 'JMP Software: Statistical Process Control' main menu. It lists various lessons: Lesson 1 Introduction, Lesson 2 Control Charts for Measurement Data, Lesson 3 Process Capability, Lesson 4 Advanced Control Charts, Lesson 5 Special Situations, Lesson 6 Case Studies, and Lesson 7 Case Studies.
- Bottom Left:** A screenshot of the 'Three Way Control Chart of Individual on Means, Moving Range on Means & R chart of Line Length' window. It displays three stacked control charts for 'Mean Length', 'Moving Range', and 'R' (Range) against 'Run'.
- Bottom Right:** A screenshot of the 'Passive Data Collect' window. It shows a data table with columns for 'Run Order', 'Day', 'Shift', 'Run', 'Book', and 'Response'. The table contains data for 10 runs across 2 days and 2 shifts.

Example of e-learning

from JMP: Statistical Process Control

What happens when you turn on all the red lights on the control chart?

- The true alarm rate goes down.
- The false alarm rate goes up.
- You never get any sleep.
- You see all possible signals in your data.

Question: Three-Way Charts

Select All



Typically
three-w

- XBar
- movi
- S cha
- P cha
- rang

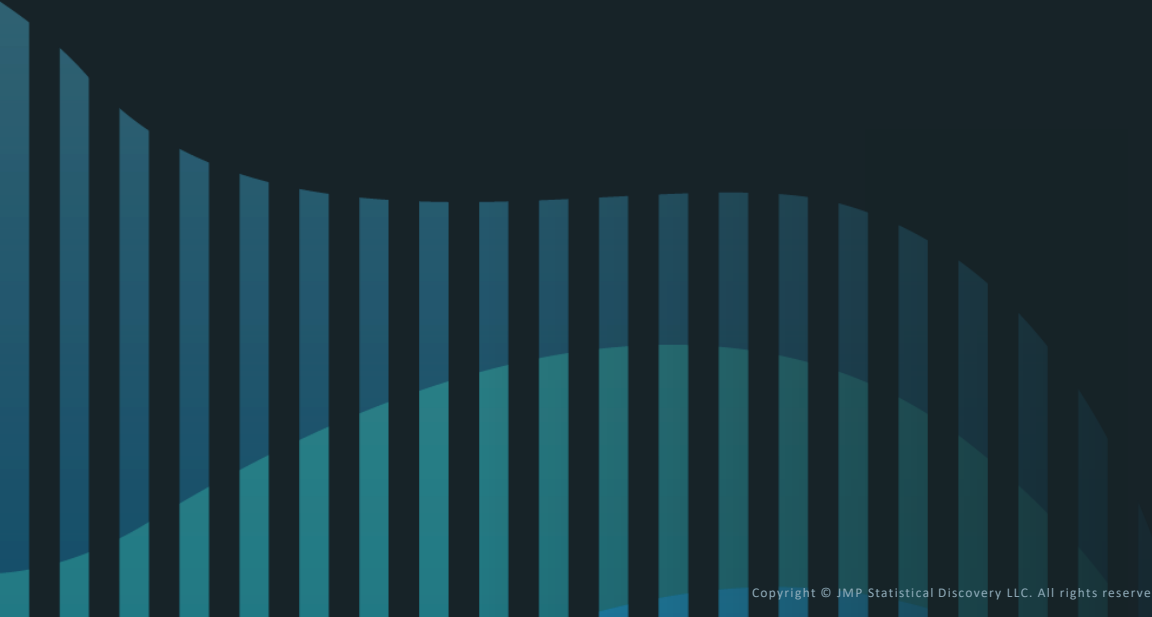
Practice: Phase I Data Collection and Analysis

Management receives a report detailing information from the book-publishing process each month. One variable measured monthly is the number of books that have been printed on demand. You decide to see whether these data are suitable for control charting. The data are in **Book demand**.

1. Explore the data using the Distribution platform.
2. Build a Phase I control chart on the data.
3. Discuss any unusual patterns.
4. Return to the course journal and select **Delete All, Save None**.

Show Solution

Instructor-led Classes



Regularly Scheduled Public Courses

- Getting Started
- Design of Experiments and Quality Improvement
- Advanced Topics and JMP Pro
- JMP Scripting Language

Public Courses

Getting Started

- JMP: A Case Study Approach to Data Exploration
- JMP: Statistical Decisions using ANOVA and Regression

Public Courses

Design of Experiments and Quality Improvement

- JMP: Custom Design of Experiments
- JMP: Design and Analysis of Mixture Experiments
- JMP: Modern Screening Designs
- JMP: Measurement Systems Analysis
- JMP: Statistical Process Control
- JMP: Reliability Analysis for Non-Repairable Systems

Public Courses

Advanced Topics and JMP Pro

- JMP: Analyzing and Modeling Multidimensional Data
- JMP: Analyzing Discrete Responses
- JMP Pro: Analyzing Curves and Profiles using the Functional Data Explorer
- JMP Pro: Exploring and Analyzing Patterns in Text Data
- JMP Pro: Finding Important Predictors
- JMP Pro: Predictive Modeling

Public Courses

JMP Scripting Language

- JMP: The JMP Scripting Language
- JMP: Designing and Building a Complete JMP Script

Public Course Schedule

All Upcoming Courses

› ADVANCED TOPICS AND JMP PRO

JMP® and JMP Pro: Finding Important Predictors

Jan. 30 - Feb 2 | 1:00 - 4:30 p.m. ET

› GETTING STARTED

JMP®: A Case Study Approach to Data Exploration

Feb. 6 - 9 | 8:00 - 10:00 a.m. ET
(2:00 - 4:00 p.m. CET)

› GETTING STARTED

JMP®: Statistical Decisions Using ANOVA and Regression

Feb. 27 - March 2 | 1:00 - 4:30 p.m. ET

› DESIGN OF EXPERIMENTS AND QUALITY IMPROVEMENT

JMP®: Custom Design of Experiments

March 27 - 30 | 1:00 - 4:30 p.m. ET

Request a Course

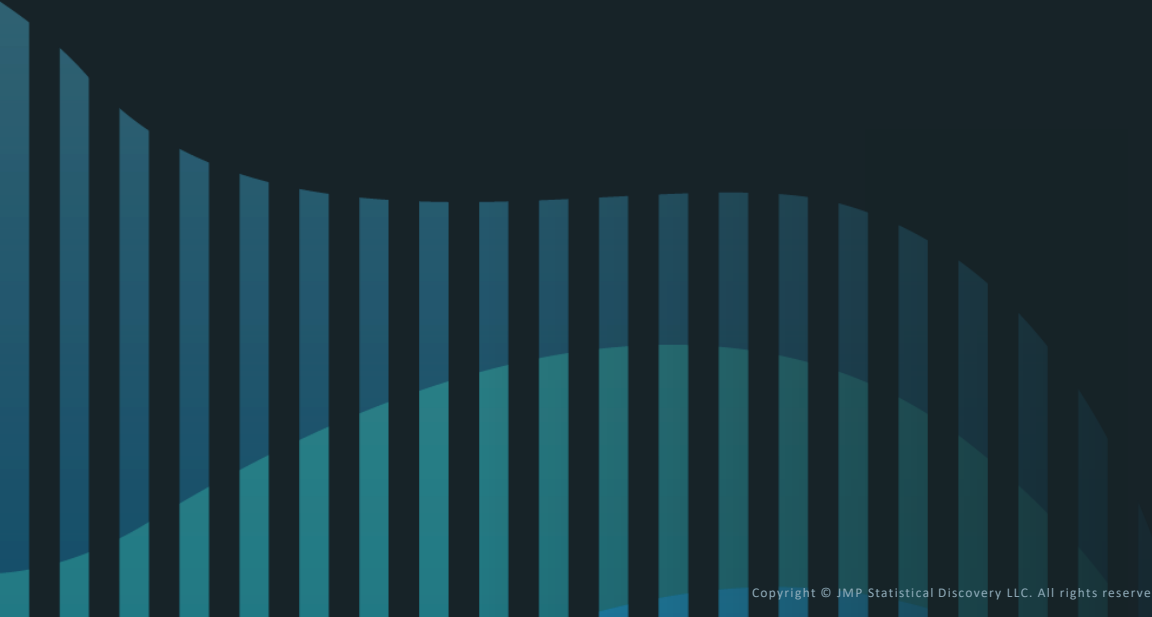
If you would like to be notified the next time a course is scheduled or you would like us to schedule a public course at a time convenient to you, click the **Request a course!** button.

Upcoming Courses

Don't see a course you want listed on dates you need? Want to be notified the next time a specific course is added to the public training schedule?

Request a course!

Access to Course Materials



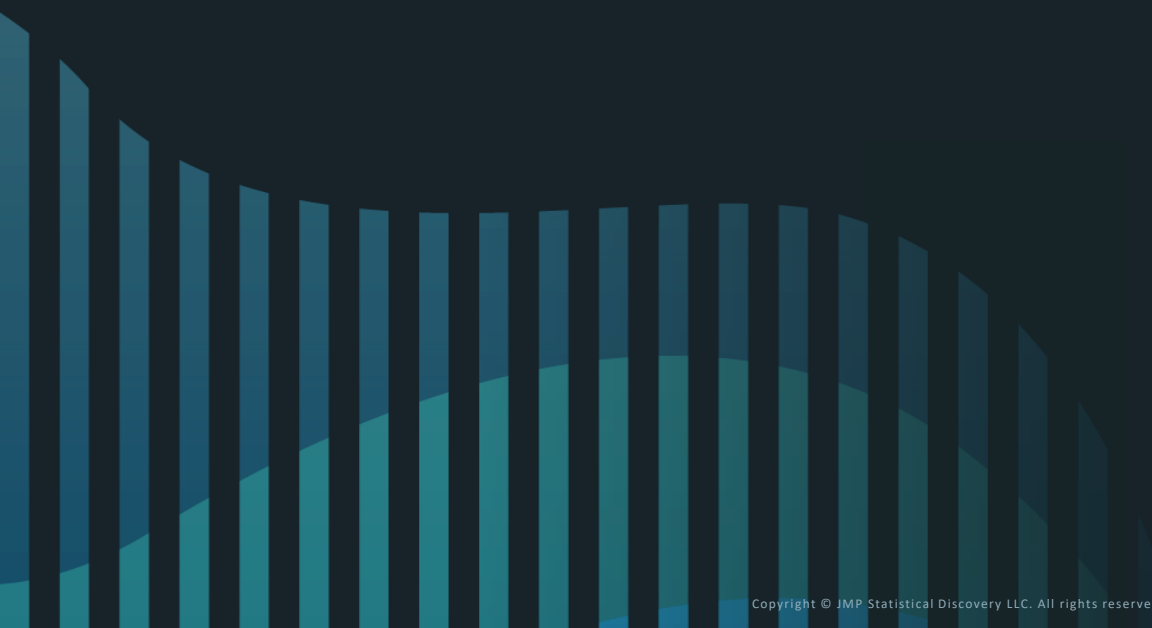
Our Course Materials for Your Training Staff

- You can request access to our course materials through your sales team.
 - PowerPoint slides, PDF file of notes, course data (usually a JMP journal)
- You (or your company's designee) signs a simple contract with some basic terms of usage.
- You can customize our material, for example, replacing our data with more relevant data.

Number of Courses Available

- Getting Started (3)
 - Design of Experiments and Quality Improvement (7)
 - Advanced Topics and JMP Pro (6)
 - JMP Scripting Language (2)
-
- Use the Request a Course button to schedule a class and see it being taught

Much More at Learn JMP



Learn JMP

jmp STATISTICAL DISCOVERY

Software JMP in Action Events Learn JMP **Community** Support About Us

Community ▾ Discussions Learn JMP Support JMP Blogs File Exchange ▾ JMP Wish List

JMP User Community

A resource for JMP software users. Start or join a conversation to solve a problem or share tips and tricks with other JMP users. Read blog posts, and download and share JMP add-ins, scripts and sample data.

Share, Ask, Learn, Connect

All community ▾ 🔍

WELCOME TO THE COMMUNITY!

- Discussions
- Learn JMP**
- JMP Blogs
- JMP Wish List
- Data for Green

Learn JMP

The *one* place to access all JMP learning materials

new JMP user → intermediate JMP user → advanced JMP user

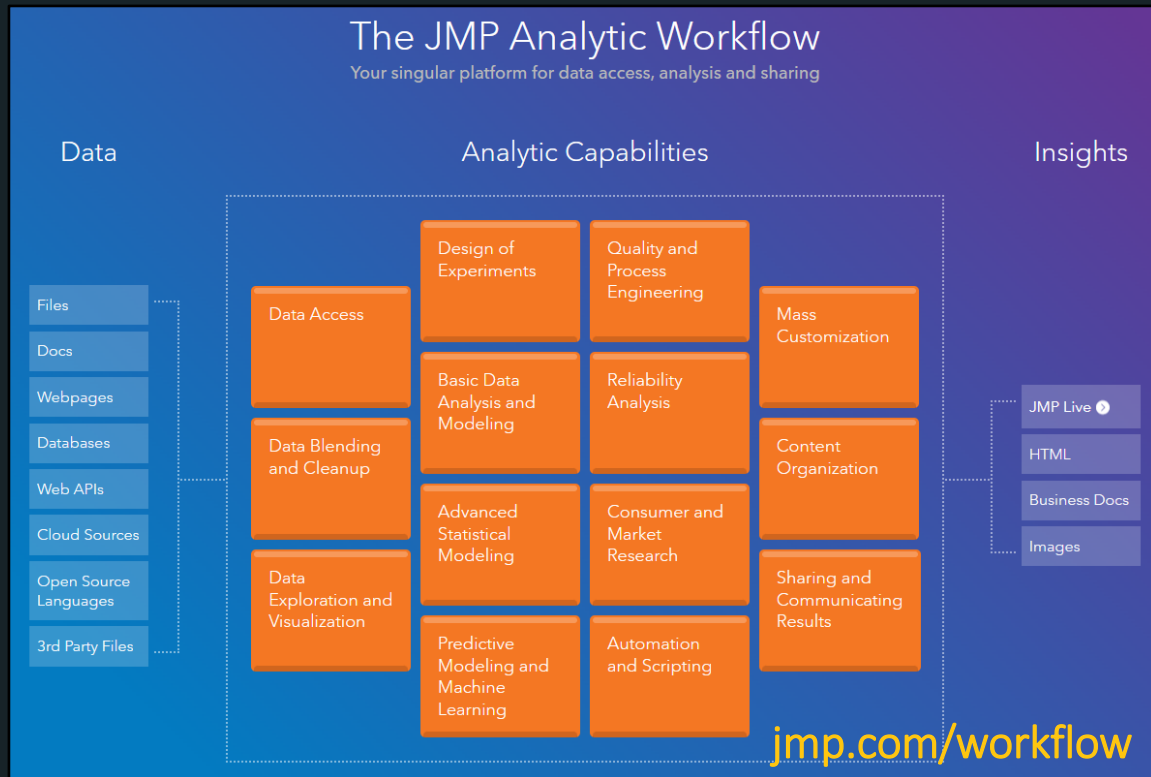
new to analytics → some knowledge → analytics practitioner

live sessions + recordings + videos + papers

1-10 minutes → 10-30 minutes → 30-60 minutes → 1-4 hours → 4-21 hours

Learn JMP

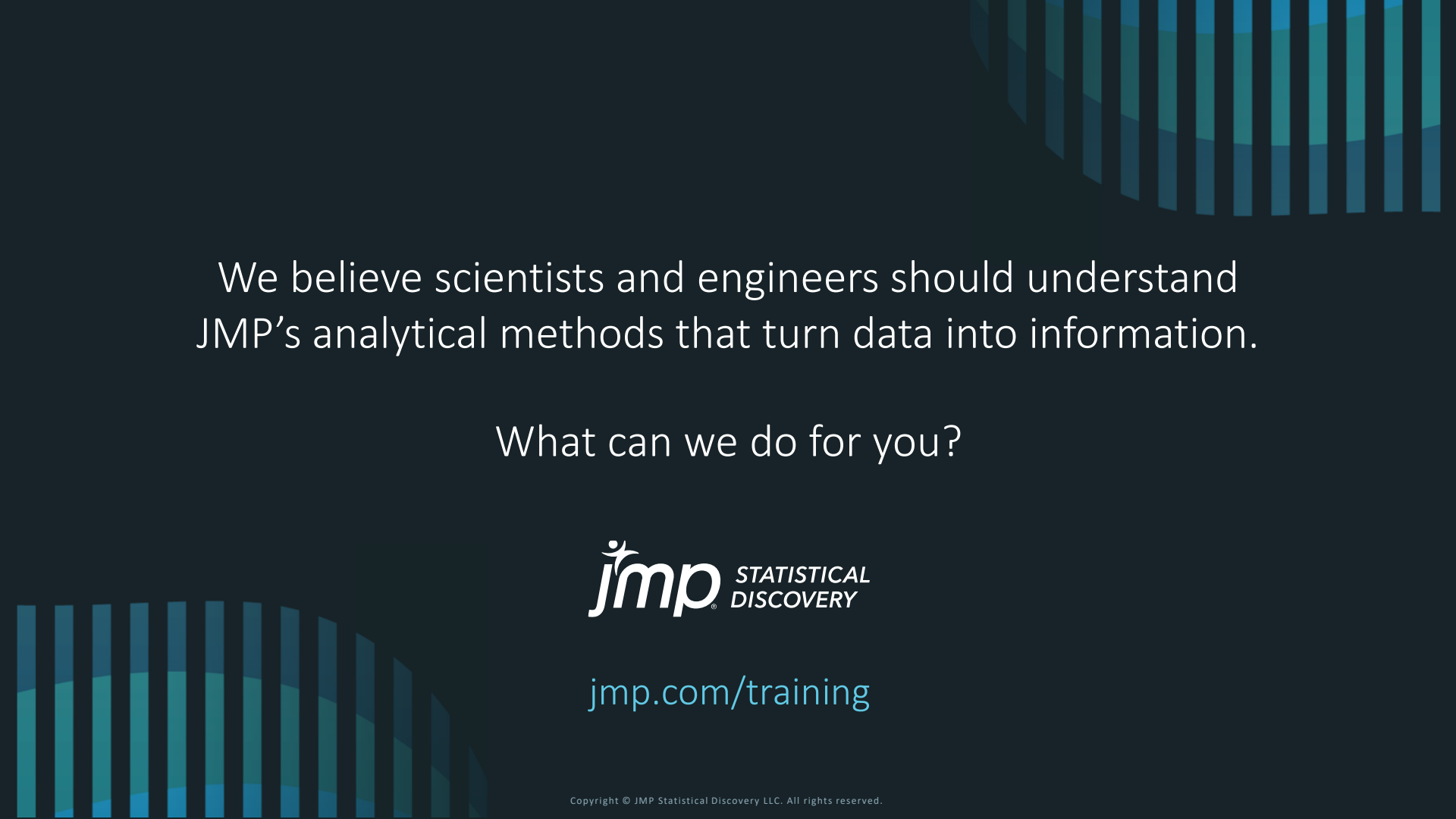
The *one* place to access all JMP learning materials



Learn JMP

The *one* place to access all JMP learning materials

- Getting Started in JMP On-Demand
- One-page Guides
- Mastering JMP live webinars and recordings
- Deeper Dive (New in 2023)
- On-demand e-learning
- Instructor-led live courses



We believe scientists and engineers should understand
JMP's analytical methods that turn data into information.

What can we do for you?



jmp.com/training