



Quality Trainer®

Getting Started Guide

For Users

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Welcome to Quality Trainer

You will be well on your way soon to understanding some of the most commonly used tools in statistics. Follow the instructions below to sign in.

1. Open the email sent to you by Minitab and click **Get Started** to access Quality Trainer.



Hello,

Welcome to your Quality Trainer subscription.

To activate your account, click Get Started. Manage your subscription and your account information from the My Account page.

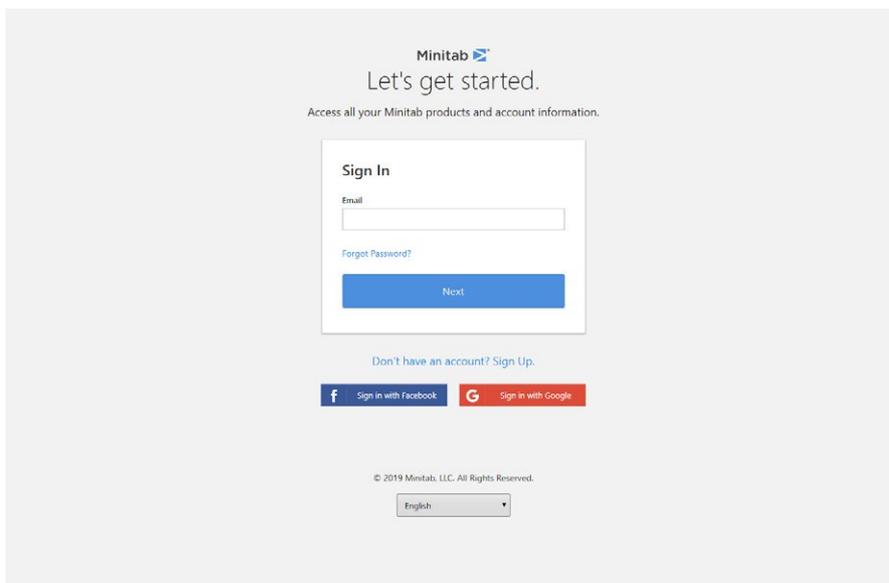
[Get Started](#)

For tips on getting started or if you have questions about your subscription, visit <http://www.minitab.com/support/>

Best Regards,

Minitab Customer Support Team

2. If you have a Minitab account, enter your email address and sign in (if you do not have an account, see the **Setting up a Minitab account** box and follow those instructions).



Setting up a Minitab account

If you do not already have a Minitab account, click **Don't have an account? Sign Up**. Enter your information and click the checkbox to accept the Privacy Policy and Terms of Use. Then click **Create Your Account**.

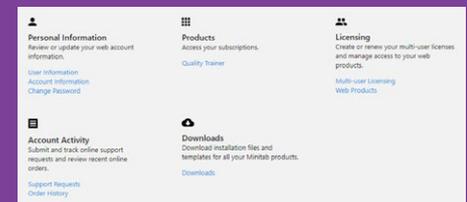
You should see this screen:



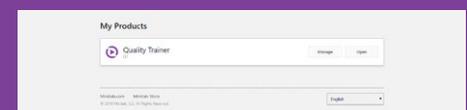
Look for an email from Minitab. Open it and click **Get Started**. You should see this message:



Click **Continue**. On the next screen, click **Quality Trainer** under **Products**.



Then click **Open** to launch Quality Trainer.



3. Scroll through the terms of the license agreement. Accept them by clicking the checkbox, then click **Accept**.

Go to the bottom of the page to read and accept the terms of the license agreement. ↓

Minitab, and Minitab shall have the right to obtain all equitable and legal redress which may be available to it for the breach or threatened breach of this Agreement or Minitab's rights in the Service, including, without limitation, injunctive relief.

9.9. This Agreement (or a separate written license agreement that has been entered into in lieu of this Agreement) shall control over any additional or conflicting any Terms and Conditions You have submitted or are contained in a purchase order for the Service You have submitted or may submit for future renewal fees or purchases. Any such additional or conflicting Terms and Conditions or terms are expressly rejected unless they have been specifically accepted and agreed to in writing by Minitab.

9.10. Entire Agreement; Amendments. This Agreement supersedes all prior agreements, proposals, representations and communications between Minitab and You, pertaining to the matters addressed herein, and this Agreement comprises the entire understanding between Minitab and You. Any variation in the terms and conditions of this Agreement, in any document not signed by You and Minitab, shall be of no force or effect.

9.11. Updated Terms. Notwithstanding section 9.10, We reserve the right to modify the terms of this Agreement at any time when necessary to account for Service updates, improvements or material changes in functionality, as well as legal or mandatory evolutions of applicable laws and regulations, and We will use reasonable efforts to notify You when We do. Your continued use of the Service and/or renewal of the Service after Your receipt of Our notification regarding such modifications shall constitute Your acceptance of the modified terms of this Agreement.

9.12. Survival. Sections 2, 3, 4, 5, 6, 7, 8, and 9 hereof shall survive the expiration or termination of this Agreement for any reason

BY CLICKING "ACCEPT" BELOW, THE INDIVIDUAL ACCEPTING THIS AGREEMENT FOR THE LICENSED ENTITY AFFIRMS THAT HE OR SHE HAS BEEN AUTHORIZED BY THE LICENSED ENTITY TO ACCEPT THE TERMS AND CONDITIONS OF THIS AGREEMENT ON ITS BEHALF.

I accept the terms in the License Agreement and the Privacy Policy.
[Privacy Policy](#)

4. Now the Quality Trainer application should appear:

The screenshot shows the Quality Trainer application interface. At the top, there is a navigation bar with the Quality Trainer logo, 'Courses', and 'Management' tabs. Below this is a 'Content' tab and an 'Index' tab. The main area displays a table of contents with three columns: CHAPTER, SECTION, and ACTIVITY.

CHAPTER	SECTION	ACTIVITY
Chapter 1: Descriptive Statistics and Graphical Analysis	1.1: Introduction	1.1.1: Learning Objectives
Chapter 2: Statistical Inference	1.2: Types of Data	
Chapter 3: Hypothesis Tests and Confidence Intervals	1.3: Using Graphs to Analyze Data	
Chapter 4: Control Charts	1.4: Using Statistics to Analyze Data	
Chapter 5: Process Capability	1.5: Summary	
Chapter 6: Analysis of Variance (ANOVA)		
Chapter 7: Correlation and Regression		
Chapter 8: Measurement and Systems Analysis		
Chapter 9: Design of Experiments		

At the bottom of the interface, there is a copyright notice: 'Copyright © 2019 Minitab LLC. All rights reserved. Privacy Policy' and a language dropdown menu set to 'English'.

Within the Quality Trainer course, you can click on different chapters under the **Content** tab to navigate to various sections and activities for each. You can also click the **Index** tab to see an alphabetical list of terms and concepts you'll encounter throughout the course. **Click 1.1.1: Learning Objectives** under **ACTIVITY** to begin the first lesson.

You can access Quality Trainer by visiting Minitab.com and clicking **My Account** in the top right corner. Next, sign in with your Minitab account information, and click **Quality Trainer** under Products. Then click **Open** to launch. You can also bookmark qualitytrainer.minitab.com in your browser to return to Quality Trainer at any time.

Switching Languages

Quality Trainer is available in several languages. Use the dropdown in the lower right corner of the screen to see which languages are available and make a selection. Please note for translated versions of Quality Trainer, the voice-over will remain in English.

Course Outline

Chapter 1: Descriptive Statistics and Graphical Analysis

- 1.1 Introduction**
 - 1.1.1 Learning Objectives
- 1.2 Types of Data**
 - 1.2.1 Basic Concepts
 - 1.2.2 Data Types
 - 1.2.3 Quiz: Types of Data
- 1.3 Using Graphs to Analyze Data**
 - 1.3.1 Basic Concepts
 - 1.3.2 Bar Charts and Pareto Charts
 - 1.3.3 Pie Charts
 - 1.3.4 Histograms
 - 1.3.5 Dotplots
 - 1.3.6 Individual Value Plots
 - 1.3.7 Boxplots
 - 1.3.8 Time Series Plots
 - 1.3.9 Quiz: Using Graphs to Analyze Data
 - 1.3.10 Minitab Tools: Bar Chart
 - 1.3.11 Minitab Tools: Pie Chart
 - 1.3.12 Minitab Tools: Histogram
 - 1.3.13 Minitab Tools: Dotplot
 - 1.3.14 Minitab Tools: Individual Value Plot
 - 1.3.15 Minitab Tools: Boxplot
 - 1.3.16 Minitab Tools: Times Series Plot
 - 1.3.17 Exercise: Graphical Analysis
- 1.4 Using Statistics to Analyze Data**
 - 1.4.1 Basic Concepts
 - 1.4.2 Mean and Median
 - 1.4.3 Range, Variance, and Standard Deviation
 - 1.4.4 Quiz: Using Statistics to Analyze Data
 - 1.4.5 Minitab Tools: Display Descriptive Statistics
 - 1.4.6 Exercise: Descriptive Statistics
- 1.5 Summary**
 - 1.5.1 Objectives Review

Chapter 2: Statistical Inference

- 2.1 Introduction**
 - 2.1.1 Learning Objectives
- 2.2 Fundamentals of Statistical Inference**
 - 2.2.1 Basic Concepts
 - 2.2.2 Random Samples
 - 2.2.3 Quiz: Fundamentals of Statistical Inference

- 2.2.4 Minitab Tools: Random Sampling
- 2.3 Sampling Distributions**
 - 2.3.1 Basic Concepts
 - 2.3.2 Sampling Distribution of the Mean
 - 2.3.3 Quiz: Sampling Distributions
- 2.4 Normal Distribution**
 - 2.4.1 Basic Concepts
 - 2.4.2 Probabilities Associated with a Normal Distribution
 - 2.4.3 Probabilities Associated with the Sample Mean
 - 2.4.4 Quiz: Normal Distribution
 - 2.4.5 Minitab Tools: Cumulative Probabilities with a Normal Distribution
 - 2.4.6 Exercise: Probabilities and Normal Distributions
- 2.5 Summary**
 - 2.5.1 Objectives Review

Chapter 3: Hypothesis Tests and Confidence Intervals

- 3.1 Introduction**
 - 3.1.1 Learning Objectives
- 3.2 Tests and Confidence Intervals**
 - 3.2.1 Confidence Intervals
 - 3.2.2 Hypothesis Testing
 - 3.2.3 Using Hypothesis Testing to Make Decisions
 - 3.2.4 Type I and Type II Errors and Power
 - 3.2.5 Quiz: Tests and Confidence Intervals
- 3.3 1-Sample t-Test**
 - 3.3.1 Basic Concepts
 - 3.3.2 Individual Value Plots
 - 3.3.3 1-Sample t-Test Results
 - 3.3.4 Assumptions
 - 3.3.5 Quiz: 1-Sample t-Test
 - 3.3.6 Minitab Tools: 1-Sample t-Test
 - 3.3.7 Exercise: 1-Sample t-Test
- 3.4 2 Variances Test**
 - 3.4.1 Basic Concepts
 - 3.4.2 Boxplots
 - 3.4.3 2 Variances Test Results
 - 3.4.4 Assumptions
 - 3.4.5 Quiz: 2 Variances Test
 - 3.4.6 Minitab Tools: 2 Variances Test
 - 3.4.7 Exercise: 2 Variances Test
- 3.5 2-Sample t-Test**

Course Outline (continued)

- 3.5.1 Basic Concepts
- 3.5.2 Individual Value Plot
- 3.5.3 2-Sample t-Test Results
- 3.5.4 Assumptions
- 3.5.5 Quiz: 2-Sample t-Test
- 3.5.6 Minitab Tools: 2-Sample t-Test
- 3.5.7 Exercise: 2-Sample t-Test

3.6 Paired t-Test

- 3.6.1 Basic Concepts
- 3.6.2 Individual Value Plots
- 3.6.3 Paired t-Test Results
- 3.6.4 Assumptions
- 3.6.5 Quiz: Paired t-Test
- 3.6.6 Minitab Tools: Paired t-Test
- 3.6.7 Exercise: Paired t-Test

3.7 1 Proportion Test

- 3.7.1 Basic Concepts
- 3.7.2 1 Proportion Test Results
- 3.7.3 Assumptions
- 3.7.4 Quiz: 1 Proportion Test
- 3.7.5 Minitab Tools: 1 Proportion Test
- 3.7.6 Exercise: 1 Proportion Test

3.8 2 Proportions Test

- 3.8.1 Basic Concepts
- 3.8.2 2 Proportions Test Results
- 3.8.3 Assumptions
- 3.8.4 Quiz: 2 Proportions Test
- 3.8.5 Minitab Tools: 2 Proportions Test
- 3.8.6 Exercise: 2 Proportions Test

3.9 Chi-Square Test

- 3.9.1 Basic Concepts
- 3.9.2 Chi-Square Test Results
- 3.9.3 Assumptions
- 3.9.4 Quiz: Chi-Square Test
- 3.9.5 Minitab Tools: Chi-Square Test
- 3.9.6 Exercise: Chi-Square Test

3.10 Summary

- 3.10.1 Objectives Review

Chapter 4: Control Charts

4.1 Introduction

- 4.1.1 Learning Objectives

4.2 Statistical Process Control

- 4.2.1 Basic Concepts
- 4.2.2 Patterns in Control Charts

- 4.2.3 Quiz: Statistical Process Control

4.3 Control Charts for Variables Data in Subgroups

- 4.3.1 Basic Concepts
- 4.3.2 R Charts
- 4.3.3 S Charts
- 4.3.4 Xbar Charts
- 4.3.5 Quiz: Control Charts for Variables Data in Subgroups
- 4.3.6 Minitab Tools: Xbar-R Chart
- 4.3.7 Exercise: Xbar-R Chart

4.4 Control Charts for Individual Observations

- 4.4.1 Basic Concepts
- 4.4.2 Moving Range Charts
- 4.4.3 Individuals Charts
- 4.4.4 Quiz: Control Charts for Individual Observations
- 4.4.5 Minitab Tools: I-MR Chart
- 4.4.6 Exercise: I-MR Chart

4.5 Control Charts for Attribute Data

- 4.5.1 Basic Concepts
- 4.5.2 NP and P Charts
- 4.5.3 C and U Charts
- 4.5.4 Quiz: Control Charts for Attributes Data
- 4.5.5 Minitab Tools: P Chart
- 4.5.6 Exercise: P Chart

4.6 Summary

- 4.6.1 Objectives Review

Chapter 5: Process Capability

5.1 Introduction

- 5.1.1 Learning Objectives

5.2 Process Capability for Normal Data

- 5.2.1 Basic Concepts
- 5.2.2 Assumptions
- 5.2.3 Testing for Normality
- 5.2.4 Quiz: Process Capability for Normal Data
- 5.2.5 Minitab Tools: Normality Test
- 5.2.6 Exercise: Assumptions for Process Capability

5.3 Capability Indices

- 5.3.1 Potential Capability: Cp and Cpk
- 5.3.2 Process Performance: Pp and Ppk
- 5.3.3 Sigma Level
- 5.3.4 Quiz: Capability Indices
- 5.3.5 Minitab Tools: Cp and Pp
- 5.3.6 Minitab Tools: Sigma Level
- 5.3.7 Exercise: Process Capability for Normal Data

5.4 Process Capability for Nonnormal Data

Course Outline (continued)

- 5.4.1 Transformations and Alternate Distributions
- 5.4.2 Box-Cox Transformation
- 5.4.3 Johnson Transformation
- 5.4.4 Alternate Distributions
- 5.4.5 Quiz: Process Capability for Nonnormal Data

- 5.4.6 Minitab Tools: Box-Cox Transformation
- 5.4.7 Minitab Tools: Johnson Transformation
- 5.4.8 Minitab Tools: Capability Analysis with Johnson Transformation
- 5.4.9 Minitab Tools: Alternate Distributions
- 5.4.10 Minitab Tools: Capability Analysis with Alternate Distributions
- 5.4.11 Exercise: Process Capability with Data Transformations
- 5.4.12 Exercise: Process Capability with Alternate Distributions

- 5.5 Summary**
- 5.5.1 Objectives Review

Chapter 6: Analysis of Variance (ANOVA)

- 6.1 Introduction**
- 6.1.1 Learning Objectives

- 6.2 Fundamentals of ANOVA**
- 6.2.1 Basic Concepts
- 6.2.2 Graphs and Summary Statistics
- 6.2.3 Quiz: Fundamentals of ANOVA

- 6.3 One-Way ANOVA**
- 6.3.1 Hypothesis Tests
- 6.3.2 F-Statistics and P-Values
- 6.3.3 Multiple Comparisons
- 6.3.4 Assumptions and Residual Plots
- 6.3.5 Quiz: One-Way ANOVA
- 6.3.6 Minitab Tools: One-Way ANOVA
- 6.3.7 Exercise: One-Way ANOVA

- 6.4 Two-Way ANOVA**
- 6.4.1 Basic Concepts
- 6.4.2 Graphs
- 6.4.3 Hypothesis Tests
- 6.4.4 F-Statistics and P-Values
- 6.4.5 Assumptions and Residual Plots
- 6.4.6 Quiz: Two-Way ANOVA
- 6.4.7 Minitab Tools: Two-Way ANOVA
- 6.4.8 Exercise: Two-Way ANOVA

- 6.5 Summary**
- 6.5.1 Summary of ANOVA

Chapter 7: Correlation and Regression

- 7.1 Introduction**
- 7.1.1 Learning Objectives

- 7.2 Relationship Between Two Quantitative Variables**
- 7.2.1 Basic Concepts
- 7.2.2 Scatterplot
- 7.2.3 Correlation
- 7.2.4 Quiz: Relationship Between Two Quantitative Variables
- 7.2.5 Minitab Tools: Scatterplot
- 7.2.6 Minitab Tools: Correlation
- 7.2.7 Exercise: Scatterplots and Correlation

- 7.3 Simple Regression**
- 7.3.1 Basic Concepts
- 7.3.2 Regression
- 7.3.3 Hypothesis Tests and R²
- 7.3.4 Assumptions and Residual Plots
- 7.3.5 Quiz: Simple Regression
- 7.3.6 Minitab Tools: Simple Regression
- 7.3.7 Exercise: Simple Regression

- 7.4 Summary**
- 7.4.1 Objectives Review

Chapter 8: Measurement Systems Analysis

- 8.1 Introduction**
- 8.1.1 Learning Objectives

- 8.2 Fundamentals of Measurement Systems Analysis**
- 8.2.1 Basic Concepts
- 8.2.2 Accuracy
- 8.2.3 Precision
- 8.2.4 Comparing Accuracy and Precision
- 8.2.5 Quiz: Fundamentals of Measurement Systems Analysis

- 8.3 Repeatability and Reproducibility**
- 8.3.1 Basic Concepts
- 8.3.2 Gage R&R Studies
- 8.3.3 Quiz: Repeatability and Reproducibility

- 8.4 Graphical Analysis of a Gage R&R Study**
- 8.4.1 Basic Concepts
- 8.4.2 Components of Variation
- 8.4.3 Xbar and R Charts
- 8.4.4 Interaction between Operator and Part
- 8.4.5 Comparative Plots
- 8.4.6 Gage Run Charts
- 8.4.7 Quiz: Graphical Analysis of a Gage R&R Study
- 8.4.8 Minitab Tools: Crossed Gage R&R Study
- 8.4.9 Minitab Tools: Gage Run Chart
- 8.4.10 Exercise: Graphical Analysis of a Gage R&R Study

Course Outline (continued)

8.5	Variation	9.2	Factorial Designs
8.5.1	Standard Deviation and Study Variation	9.2.1	Basic Concepts
8.5.2	Tolerance	9.2.2	Creating Full Factorial Designs
8.5.3	Quiz: Variation	9.2.3	Analyzing Full Factorial Designs
8.5.4	Exercise: Numerical Analysis of a Gage R&R Study	9.2.4	Quiz: Factorial Designs
		9.2.5	Minitab Tools: Create a Full Factorial Design
8.6	ANOVA with a Gage R&R Study	9.2.6	Minitab Tools: Analyze a Full Factorial Design
8.6.1	Variance Components	9.2.7	Exercise: Create a Full Factorial Design
8.6.2	Analysis of Variance Tables	9.2.8	Exercise: Analyze a Full Factorial Design
8.6.3	Quiz: ANOVA with a Gage R&R Study	9.3	Blocking and Incorporating Center Points
8.6.4	Exercise: ANOVA Output for a Gage R&R Study	9.3.1	Blocking
8.7	Gage Linearity and Bias Study	9.3.2	Center Points
8.7.1	Basic Concepts	9.3.3	Analyzing Designs with Blocks and Center Points
8.7.2	Gage Linearity	9.3.4	Quiz: Blocking and Incorporating Center Points
8.7.3	Gage Bias	9.3.5	Minitab Tools: Create a Factorial Design with Blocks and Center Points
8.7.4	Quiz: Gage Linearity and Bias Study	9.3.6	Minitab Tools: Analyze a Factorial Design with Blocks and Center Points
8.7.5	Minitab Tools: Gage Linearity and Bias Study	9.3.7	Exercise: Create a Factorial Design with Blocks and Center Points
8.7.6	Exercise: Gage Linearity and Bias Study	9.3.8	Exercise: Analyze a Factorial Design with Blocks and Center Points
8.8	Attribute Agreement Analysis	9.4	Fractional Factorial Designs
8.8.1	Basic Concepts	9.4.1	Basic Concepts
8.8.2	Binary Data	9.4.2	Creating Fractional Factorial Designs
8.8.3	Nominal Data	9.4.3	Analyzing Fractional Factorial Designs
8.8.4	Ordinal Data	9.4.4	Quiz: Fractional Factorial Designs
8.8.5	Quiz: Attribute Agreement Analysis	9.4.5	Minitab Tools: Create a Fractional Factorial Design
8.8.6	Minitab Tools: Attribute Agreement Analysis with Binary Data	9.4.6	Minitab Tools: Analyze a Fractional Factorial Design
8.8.7	Minitab Tools: Attribute Agreement Analysis with Nominal Data	9.5	Response Optimization
8.8.8	Minitab Tools: Attribute Agreement Analysis with Ordinal Data	9.5.1	Response Optimization
8.8.9	Exercise: Attribute Agreement Analysis	9.5.2	Quiz: Response Optimization
8.9	Summary	9.5.3	Minitab Tools: Response Optimization
8.9.1	Objectives Review	9.5.4	Exercise: Response Optimization
		9.6	Summary
		9.6.1	Objectives Review

Chapter 9: Design of Experiments

9.1	Introduction
9.1.1	Learning Objectives

Minitab  Our mission is to help people discover valuable insights in their data.

Minitab helps companies and institutions to spot trends, solve problems and discover valuable insights in data by delivering a comprehensive and best-in-class suite of data analysis and process improvement tools. Combined with unparalleled ease-of-use, Minitab makes it simpler than ever to get deep insights from data. Plus, a team of highly trained data analytic experts ensure that users get the most out of their analysis, enabling them to make better, faster and more accurate decisions.

For over 45 years, Minitab has helped organizations drive cost containment, enhance quality, boost customer satisfaction and increase effectiveness. Thousands of businesses and institutions worldwide use Minitab Statistical Software, Companion, and Quality Trainer to uncover flaws in their processes and improve them. In 2017, Minitab acquired Salford Systems, a leading provider of advanced analytics which delivers a suite of powerful data mining, predictive analytics and modeling capabilities. Unlock the value of your data with Minitab.



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Companion by Minitab®



Quality Trainer®



Salford Predictive Modeler®