



# Business Analytics Education



## Online Education • Certification • Enterprise Solutions

- Analytics Fundamentals
- Fundamentals of Predictive Analytics
- Prescriptive Analytics Using Simulation Models
- Data Mining Concepts and Techniques
- Location Intelligence and GIS
- Diagnostic Analytics Using Statistical Process Control
- Business Analytics Practices and Applications
- Root Cause Analysis
- Web Analytics
- Data Mining in R
- Introduction to NoSQL



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**Business Analytics** is the science of finding insight in data – exploring data to find patterns and interpreting the patterns to gain knowledge and understanding. Everyone in business management today has an interest in analytics to guide strategy, tactics, and execution. This multi-faceted field encompasses a wide range of analytics goals including descriptive, discovery, diagnostic, predictive, and prescriptive analytics. Analysts range from line-of-business managers using self-service visual analysis tools to statisticians and data scientists using advanced statistical analysis techniques.

Effective analysts need the skills to find the right datasets, understand data content and structure, blend and transform data, format data for analysis, visualize data and find patterns, and explain the meanings of the patterns. Analytics practitioners work a continuum from data analysis, to causal analysis, data visualization and data storytelling. Finding insight in data is rewarding, but only the beginning. Turning insight into opportunity and innovation is the pinnacle of analytics achievement.

## WHAT OUR CUSTOMERS ARE SAYING

**“The course instructors were very insightful, and were very knowledgeable.”**

I found the courses to be very well designed; they were intellectually stimulating and challenging, but the workload was manageable. The course instructors were very insightful, and were very knowledgeable with the great hands-on experience and provided interesting real life examples.

*Marina Severinovskaya, CIMP Ex - Data Governance, CIMP - Data Quality, MDM, IM Foundations, USA*

# CURRICULA AT-A-GLANCE

Full course descriptions begin on page 7.

## **Business Analytics Fundamentals**

**Instructors:** Mark Peco, Dave Wells

This 6-hour online course provides a foundation to understand the scope and the key success factors of analytics. Concepts and terminology are introduced, and scope of analytics is discussed to set context and provide a frame of reference for topics that follow.

## **Fundamentals of Predictive Analytics**

**Instructor:** Eric Siegel

By learning from your abundant historical data, predictive analytics delivers something beyond standard business reports and sales forecasts: actionable predictions for each customer. This 5-hour online course goes from fundamentals and best practices to hands-on discussion of predictive analytics models and their applications.

## **Prescriptive Analytics Using Simulation Models**

**Instructor:** Mark Peco

This 4-hour online training course provides an introduction to simulation analytics applied to areas that are relevant to business analysts, operations planners, decision makers, functional managers and BI team members.

## **Data Mining Concepts & Techniques**

**Instructor:** Deanne Larson

This 3-hour online course will give insight into the data mining process, explain algorithms, and cover how to match the right models to the right problems. This course focuses on defining both data mining and data science and provides a review of the concepts, processes, and techniques used in each area.

## **Location Intelligence and GIS**

**Instructors:** George Williams, K-Y Su

This 4 hour online training course provides an overview of geographic information system software with the goal of demonstrating how to use the technology to build Location Intelligence.

## **Diagnostic Analytics Using Statistical Process Control**

**Instructors:** Mark Peco

This 4-hour course provides an introduction to the concepts, techniques and applications of SPC within the context of information management. The theory of SPC is introduced and the design of control charts is discussed as a basis for describing how a diverse range of data and process quality management challenges can be addressed.

## **Business Analytics Practices and Applications**

**Instructors:** Bonnie Politano

This 3-hour course will walk you through the components in today's market to address advanced analytics and a way to look holistically at how to apply these tools.

## **Root Cause Analysis**

**Instructors:** Dave Wells

Through this 3.75-hour online training course you will discover the art and science of knowing why. Learn to apply linear thinking, lateral thinking, systems thinking, and critical thinking – independently and in combination – to get to the core of even the most vexing problems.

## **Web Analytics**

**Instructor:** Jake Dolezal

Many companies are integrating their Web analytics data with data from other sources and performing analytics to understand customer behavior and enable highly individualized marketing. This 3 hour online training course provides an overview of Web analytics, as well as analytics techniques and applications that are suitable to the context of Web data.

## **Data Mining in R**

**Instructor:** Deanne Larson

This 3.5 online training course will show you how to use R basics, work with data frames, data reshaping, basic statistics, graphing, linear models, non-linear models, clustering, and model diagnostics.

## **Introduction to NoSQL**

**Instructor:** William McKnight

This 3.5-hour online course addresses the emerging class of NoSQL technologies for managing operational big data. This includes key-value, column stores, document stores and graph databases. Learn about the ideal workloads for NoSQL in enterprises and where NoSQL adds value to an enterprise information strategy. Learn how to get the projects started or dropping the “not in production” label.



## **CIMP: Demonstrate Mastery. Achieve Success.**

Certification is an important tool for job seekers and for employers seeking to hire the most qualified people. eLearningCurve offers a robust certification program, Certified Information Management Professional (CIMP) that builds upon education to certify knowledge and understanding of information management.

**The CIMP Business Analytics** designation makes a clear statement that you have learned from the industry leaders and have demonstrated thorough understanding of business analytics by passing several challenging exams.

For the true experts and standard bearers in the industry we offer the second level of CIMP certification - **CIMP Ex**. To earn the CIMP Ex designation you must demonstrate a combination of great **Expertise**, **Experience**, and **Excellence**.

## **WHAT SETS CIMP APART?**

**Rigorous exam system:** We go beyond the basics. Rather than testing for knowledge that any industry professional should know, CIMP exams test an in-depth knowledge, comprehensive understanding, and ability to apply various concepts to a problem. You can be proud of your achievement of the CIMP designation, and hiring managers can be sure they are getting a highly knowledgeable employee.

**Education to support certification:** We believe that the best way to ensure success is to combine meaningful industry experience with thorough academic study. To that end, CIMP exams are aligned with our courses, developed and taught by top industry educators and professionals.

**Designed with busy, working professionals in mind:** No time-consuming or costly travel is required to complete coursework or to take your CIMP examinations. All courses and exams are available online. All that's required of candidates is an internet connection and the desire to demonstrate mastery of data governance topics and achieve success.

## **HOW DO I ENROLL?**

The most convenient and cost-efficient method to enroll in the CIMP program is with one of our [Education Packages](#). Each package includes all courses and exams necessary to earn CIMP or CIMP Ex. Alternatively, you can enroll in courses one at a time.



For more information about CIMP, including customer stories on the Web visit <http://ecm.elearningcurve.com>.

## ENTERPRISE SOLUTIONS



**Today more than ever companies are watching expenses and looking for ways to streamline processes, make training convenient, and create a consistent, scalable learning environment.**

eLearningCurve Enterprise is a flexible, convenient, and cost-effective way to train your employees and ensure that all team members have access to BI training they need when they need it. Whether your team or department work in the same office, or are on the other side of the world from each other, you can train them on time and on budget with eLearningCurve Enterprise.

### **Why eLearningCurve Enterprise?**

- Comprehensive educational solution from a single provider
- Employees can take the courses they need when they need them
- Ensure all team members are trained to the same high standard
- Train employees no matter what their geographic location
- Employ a fully scalable education solution
- Minimize disruption to the business
- Maximize your employee training ROI
- Achieve 100% information comprehension
- Get "live" time with our instructors
- Stretch your training budget
- Get solutions for your specific needs

### **When you become an Enterprise customer we:**

- Work with you to develop educational programs for different roles, positions, teams, departments
- Manage and track enrollment of all students in online classes and CIMP exams
- Track and report educational progress for each student
- Work with you to meet any specific educational needs, including:
  - Organize question and answer meetings (via Webinar) with course instructors for groups of students who complete online courses
  - Organize onsite sessions when appropriate, often for senior management.
  - Prioritize new course development, or customize existing courses, per customer needs
  - Create custom instances of our Learning Management System to reflect customer branding
  - Mount our online courses on the customer's Learning Management System

## eLearningCurve Enterprise Benefits

### **PARTNERSHIP: *Comprehensive educational solution from a single provider.***

eLearningCurve will be your educational "partner-for-life" providing all employees with continuous information management education they need over the course of their careers. You can be sure that all employees, including new hires and transfers, come up to speed quickly and learn from a common state-of-the-art set of courses.

### **FLEXIBILITY: *Employees can take the courses they need when they need them.***

Educational needs vary from employee to employee and project to project. eLearningCurve's flexible program allows your employees to take the courses they need when they need them to best suit their role, projects, backgrounds or interests.

**CONSISTENCY: *Ensure all team members are trained to the same high standard.*** Train your existing team, and set up courses for new hires and transfers. Consider CIMP exams to verify that your employees utilize the same methodology, techniques, and terminology.

### **SCALABILITY: *Select an Education Partner who truly understands scalability.***

eLearningCurve Enterprise is 100% scalable. Roll out to a few employees, or your entire organization. If your team or department grows, it's no problem. Our solution can quickly and effortlessly accommodate groups of all sizes, even if they are geographically dispersed.

### **BREADTH: *Acquire comprehensive education and certification.***

We offer more than just a collection of courses, we offer information management education. Whether its data quality, data governance, MDM or another information management discipline or function we have you covered with a comprehensive set of courses, exams, and certification programs designed to impart knowledge, test understanding, and validate learning.

### **LOCATION: *Train employees no matter what their geographic location.***

Overcome geographical barriers to training. With eLearningCurve Enterprise you can train your entire team whether they are in the same office, or on the opposite sides of the world. Everyone can access our online courses from any place at any time.

### **LOGISTICS: *Minimize disruption to the business.***

It's not realistic for an entire department to take time off en masse for training. eLearningCurve's online format allows employees to study from their office or home, allocate full training days, or study an hour a day during lunch breaks.

### **ROI: *Maximize your employee training ROI.***

No need to worry about paying for flights, hotels and other travel expenses. 100% of what you spend goes towards learning, thus achieving top quality education at a fraction of the cost of in-person training.

### **RESULTS: *Achieve 100% information comprehension.***

Learn from top industry experts in data quality, data governance, master data management, data modeling, data warehousing, and business intelligence. Study at your own pace, listen to the material many times, and test your knowledge through CIMP certification exams.

### **SAVINGS: *Stretch your training budget.***

We offer various pricing options including volume discounts, pay-as-you-go model with increasing discounts, and other alternatives. We try to understand your needs and budget constraints, and meet them in the best way possible.

### **"LIVE" INTERACTION: *Spend time with our instructors.***

Arrange "live" Webinar sessions with the leading experts, practitioners, and educators, or purchase online/onsite training combination packages and get access to our education both online and "live" on-site.

### **CUSTOMIZATION: *Get solutions for your specific needs.***

Our Learning Management System can be customized to reflect your company's branding or we can mount our courses on your corporate LMS.

# COURSE DESCRIPTIONS

## Business Analytics Fundamentals

**Instructors:** Mark Peco and Dave Wells

**Duration:** 6 hours

Analytics is a mainstream topic in almost every walk of life today. In business, it is discussed in the boardroom, at strategy sessions, in operational settings, in marketing campaigns and in technology groups. In everyday life, it is used to manage social networks, personal fitness, personal health, and much more.

Analytics offers tremendous potential for organizations to improve competitive positioning, generate new insights, guide decision makers, and shape positive outcomes. Success with analytics requires a understanding of many parts that must work together to turn potential into. The ability to harness data, technology, people, and processes cohesively is fundamental to success.

This 6-hour online course provides a foundation to understand the scope and the key success factors of analytics. Concepts and terminology are introduced, and scope of analytics is discussed to set context and provide a frame of reference for topics that follow. Business analytics is described and made tangible through a variety of industry use cases and functional examples.

### **You will learn:**

- Key definitions, concepts and terminology
- Use cases and functional applications
- Descriptions and scope of data analytics
- Common techniques and how to apply them
- Some examples to address a variety of applications
- Key processes and methodologies to manage analytics work and activities

### **This course is geared towards:**

- Business Managers and Executives
- Technology Managers and Executives
- Business Analysts
- Statisticians and Analytic Modelers
- Process Managers and Decision Makers
- Business Measurement/Performance Analysts
- IT Analysts and Developers
- Data Management Analysts
- Technology and Business Architects
- BI and Analytics Program Managers
- Anyone with interest in understanding analytics

## Course Outline

### **Module 0. About the Course (6 min)**

### **Module 1. The Analytics Landscape (29 min)**

- Analytics Defined
- Two Kinds of Analytics
- The Language of Analytics
- Summary

### **Module 2. Introduction to Business Analytics (49 mins)**

- What is Business Analytics
- Why Business Analytics? Part 1 & 2
- Example: Business Analytics Value
- Strategic Positioning of Business Analytics Part 1-5
- Industry Use Cases
- Business Function Use Cases

### **Module 3a. Introduction to Data Analytics, Part 1 (73 mins)**

- What and Why
- Definitions and Context
- Data Sources
- Data Management

### **Module 3b. Introduction to Data Analytics, Part 2 (57 mins)**

- Data Discovery
- Data Analysis

### **Module 4. Analytics Capabilities – Doing the Work (33 mins)**

- Describing Capabilities
- The Analytics Layer

### **Module 5. Analytic Techniques (58 mins)**

- Techniques
- Examples Overview
- Linear Regression Example
- Logistic Regression Example
- Decision Tree Example

### **Module 6. Analytics Processes (42 mins)**

- Oversight Process
- Development Process
- Delivery Process
- Organizations and Processes

## Fundamentals of Predictive Analytics

**Instructors: Eric Siegel**

**Duration: 5 hours**

Business metrics do a great job summarizing the past. But if you want to predict how customers will respond in the future, there is one place to turn -- predictive analytics. By learning from your abundant historical data, predictive analytics delivers something beyond standard business reports and sales forecasts: actionable predictions for each customer. These predictions encompass all channels, both online and off, foreseeing which customers will buy, click, respond, convert or cancel. If you predict it, you own it.

The customer predictions generated by predictive analytics deliver more relevant content to each customer, improving response rates, click rates, buying behavior, retention and overall profit. For online applications such as e-marketing and customer care recommendations, predictive analytics acts in real-time, dynamically selecting the ad, web content or cross-sell product each visitor is most likely to click on or respond to, according to that visitor's profile.

This online training course goes from fundamentals and best practices to hands-on discussion of predictive analytics models and their applications.

### **You will learn:**

- Applications: Business, marketing and web problems solved with predictive analytics
- The techniques, tips and pointers you need in order to run a successful predictive analytics and data mining initiative
- How to strategically position and tactically deploy predictive analytics and data mining  
How to bridge the prevalent gap between technical understanding and practical use
- How a predictive model works, how it's created and what it looks like
- Evaluation: How well a predictive model works and how much revenue it generates
- Detailed case studies that demonstrate predictive analytics in action and make the concepts concrete
- Two tool demonstrations showing how predictive analytics really works

### **This course is geared towards:**

- Managers. Project leaders, directors, CXOs, vice presidents, investors and decision makers of any kind involved with analytics, direct marketing or online marketing activities.
- Marketers. Personnel running or supporting direct marketing, response modeling, or online marketing who wish to improve response rates and increase campaign ROI for retention, up-sell and cross-sell.
- Technology experts. Analysts, data scientists, BI directors, developers, DBAs, data warehousing professionals, web analysts, and consultants who wish to extend their expertise to predictive analytics.

## Course Outline

### **About the Course (10 min)**

#### **Introduction (56 min)**

- Introduction to Predictive Analytics
- How It Works?
- Decision Trees
- Response Modeling

#### **Applications and Data Requirements (76 min)**

- Applications
- Attrition Modeling Examples
- Data Preparation

#### **Predictive Modeling Methods (68 min)**

- More on Decision Trees
- Other Modeling Methods
- Methods Comparison

#### **Management and Deployment (63 min)**

- Project Management
- Killer Application: Content Selection
- Case Study: Targeting Ads

#### **Software Demonstrations (24 min)**

## Prescriptive Analytics Using Simulation Models

**Instructor: Mark Peco**

**Duration: 4 hours, 10 minutes**

Prescriptive analytics enables managers to explore different scenarios and evaluate new business opportunities by playing the “what-if” game. It enables the evaluation and comparison of different options as part of the decision making process. This leads to a deeper understanding about how to define and achieve business and operating goals.

Implementing prescriptive analytics using simulation methods within a Business Intelligence (BI) program provides additional capabilities to existing BI programs. Answers to advanced business questions starting with "why" and "what if" can now be answered. Maintaining the models in a calibrated and reliable manner over time requires rigorous data management practices based on principles of integration and quality.

Prescriptive analytics using simulation extends and enhances the capabilities of BI programs and BI programs enable the utility and maintainability of the necessary data and models.

This 4-hour online training course provides an introduction to prescriptive analytics using simulation models applied to areas that are relevant to business analysts, operations planners, decision makers, functional managers and BI team members. The basic concepts are introduced and a framework is provided that positions simulation analytics within a broader BI Program. Categories of models are described that provides an overview of the breadth of potential opportunities for prescriptive analytics within diverse organizations.

### **You will learn:**

- Basic capabilities of simulation
- Categories of models and modeling techniques
- Domains of applicability
- How to build and implement simulation models
- Data management requirements for simulation
- How business problems can be defined and solved
- The role of experimental design
- How insights can be generated
- How to explore and discover possible routes to successful outcomes
- How business intelligence, analytics, and simulation are related disciplines

### **This course is geared towards:**

- BI program leaders
- BI architects and project managers
- Business analytics team members
- Business managers and decision makers
- Functional analysts
- Operations managers
- Process improvement specialists

## Course Outline

### **About the Course (6 min)**

#### **Introduction (54 min)**

- Basic Concepts
- Capabilities of Simulation
- Business intelligence Framework
- Simulation Framework

#### **Principles and Practices (38 mins)**

- Context and Opportunities
- Application Areas
- Systems Models
- Model Components
- System Simulation

#### **Modeling Techniques - Part I (60 mins)**

- Overview
- Continuous Physical Models
- Business Process Models
- Stock and Flow Models

#### **Modeling Techniques - Part II (43 mins)**

- Monte Carlo Models
- Discrete Event Models
- Empirical Models

#### **Simulation (49 mins)**

- Opportunities and Techniques
- Data Management Considerations
- Simulation and the BI Program
- Case Study

## Data Mining Concepts and Techniques

**Instructor: Deanne Larson**

**Duration: 3 hours**

Data mining originated primarily from researchers running into challenges posed by new data sets. Data mining is not a new area, but has re-emerged as data science because of new data sources such as Big Data. This course focuses on defining both data mining and data science and provides a review of the concepts, processes, and techniques used in each area.

This 3-hour online course will give you insight into the data mining process, explain models and algorithms, and give an understanding of how to match the right data mining models to the right problems.

### **You will learn:**

- The definitions of data mining and data science
- The role of statistics in data mining
- Machine learning concepts
- To differentiate between supervised and unsupervised learning
- The data mining process
- How to conduct exploratory data analysis
- To identify data mining models and algorithms
- How to match the problem with the model
- Model validation techniques
- How to deploy data mining models

### **This course is geared towards:**

- Analysts looking to gain foundational data mining knowledge
- Analysts looking to understand data mining models
- Analysts looking to apply the right data mining models to the right problem
- Attendees should have a basic understanding of undergraduate statistics, data types, databases, and data management concepts

## Course Outline

### **About the Course (3 min)**

#### **Introduction to Data Mining (25 min)**

- Module Overview
- What is Data Mining?
- Statistics in Data Mining
- Machine Learning
- Supervised Learning
- Unsupervised Learning

### **The Data Mining Process (24 min)**

- Data Mining Framework
- Data Mining Approaches
- Data Mining Techniques
- Data Mining Process

### **Exploratory Data Analysis (29 min)**

- Exploratory Data Analysis
- Data Profiling: Uncovering Structure
- Data Profiling: Types of Profiling
- Descriptive Statistics
- Results of Data Profiling Data Relationships
- Findings – Important Variables
- Visualization Techniques
- Outcomes and Interpretations
- Sampling Size
- Sample Quality
- Big Data Considerations
- Feature Selection
- EDA Checklist

### **Data Mining Models and Algorithms (71 min)**

- Build the Model
- Anatomy of a Model
- What is a Classification Problem
- Classification
- Ensemble Methods
- Clustering
- Clustering Uses
- Association–Market Basket
- Association Rules
- Association Uses
- Application of Data Mining Models
- Model Selection

### **Model Validation Techniques (18 min)**

- The Validation Process
- Fitting a Model
- Bias/Variance Tradeoff
- Regression – Mean Squared Error
- Linear Regression – Confidence and Prediction Intervals
- Logistic Regression – Significance Test
- Classification Accuracy
- Classification Accuracy – Other Measures
- Prediction Error Methods
- Hold-Out Cross Validation
- K-Fold Cross Validation Method

### **Module 6. Deploying Data Mining Tools (9 min)**

- Overview
- Deploying Data Mining Models
- Course Summary Parts 1 & 2
- References

## Location Intelligence and GIS

**Instructors: George Williams and K-Y Su**

**Duration: 4 hours**

Location Intelligence has been important for human endeavors for centuries. With modern advances in Information Technology, Location Intelligence can be achieved by commercial businesses with the use of Geographic Information Systems. A Geographic Information System (or GIS) is a relational database technology that enables both analysis and visualization of geographic, demographic, and other types of geospatial data. The technology was first introduced in the 1970s and has evolved to provide scientists, engineers, and business analysts with a means by which to analyze their data through a customizable map and graphical user interface.

While all levels of government, military, engineering & scientific consultants, and academic organizations have been successfully using GIS for a variety of applications, commercial businesses have been slow to adopt the technology in order to provide better Location Intelligence for their Business Intelligence operations.

This online training course provides an overview of GIS software with the goal of demonstrating how to use the technology to build Location Intelligence.

### **You will learn:**

- What a Geographic Information System (GIS) is, its relationship to relational database technology and typical existing organizational data, its historical applications, the importance of geocoding, and how to obtain the software.
- How to use GIS to perform Geospatial Analyses of data within a data repository
- How to use GIS to build Location Intelligence, along with current and past examples of GIS used for Location Intelligence

### **This course is geared towards:**

- IT professionals who are interested in understanding the nature and uses of geospatial data
- Business analysts and data analysts who need to perform location-based analysis
- Data scientists and analytic modelers who need to understand location analytics
- Data management, data warehousing, and BI professionals who need to integrate geospatial data into the BI ecosystem
- Business executives and managers who want to understand the potential and the complexities of location-based analysis

## Course Outline

### **About the Course (11 min)**

#### **What is GIS Actually? (47 min)**

- Overview
- Basic GIS Definition and Common Misconceptions
- Location Intelligence
- What Does GIS Do?

#### **GIS Functions and Spatial Analysis: Part 1 (38 min)**

- Overview
- Map Production– Basic Function
- Thematic Mapping

#### **GIS Functions and Spatial Analysis: Part 2 (41 min)**

- Geospatial Data Analysis
- Modeling Building and Scripting

#### **Location Intelligence: Part 1 (46 min)**

- Module Overview
- Not a New Concept
- Who Uses GIS for Location Intelligence?
- USAF Missile Site Selection Program
- Location Intelligence and Public Utilities
- Department of Ecology: Underground Tank Inspection & Maintenance

#### **Location Intelligence: Part 2 (64 min)**

- Disaster Preparedness and Response
- Redistricting
- Coin Machine Placement Modeling
- Location Intelligence for Cell Industry
- Location Intelligence and Waste Management
- Exploring Uncharted Territory
- Maps as Marketing Tools
- Spatial OLAP Technology
- Module Summary
- Course Summary

## Diagnostic Analytics Using Statistical Process

### Control

**Instructor: Mark Peco**

**Duration: 4 hours, 10 minutes**

The field of Diagnostic Analytics includes the capabilities to detect abnormal conditions and to estimate root causes to those conditions. This course is focused on the “detection” aspect of diagnostic analytics and introduces Statistical Process Control (SPC) as a suitable approach for defect detection. Root cause analysis of the identified defects is beyond the scope of this course.

SPC includes a set of analytical techniques that measure and detect abnormal changes in the behavior of a managed process. SPC helps managers respond to unexpected changes in critical variables and take corrective action as necessary to maintain the desired levels of product quality and process performance over time.

The reduction in variation of process behavior is critical for improving both process and product quality. Successful implementation of SPC requires management commitment to continuous process improvement over time. SPC tools provide measurement and analytical inputs to an overall Quality Management framework.

This online training course provides an introduction to the concepts, techniques and applications of SPC within the context of information management practices and processes. The theory of SPC is introduced and the design of control charts is discussed as a basis for describing how a diverse range of data and process quality management challenges can be addressed.

#### **You will learn:**

- Identify methods for detecting defects and abnormal conditions
- Define and describe some common process building blocks
- Describe the concepts and theory behind “statistical control”
- Describe how statistical methods can be used to measure and estimate process variation
- Identify and categorize major causes of process variation
- Describe how process variation is directly related to product quality
- Discuss the principles of control charts used to detect and generate process alarms
- Present the basic concepts of quality management initiatives and practices and how it relates to the scope of Statistical Process Control

- Describe how to apply solutions to address process, data and related quality management challenges
- Provide the context necessary to implement effective solutions

#### **This course is geared towards:**

- Big Data Analytics Professionals
- Data Quality Analysts
- Data Governance Leaders
- Process Improvement Analysts
- Business Analysts
- Information Technology Professionals
- Data Warehousing Team Members
- Data Warehousing and Big Data Professionals
- Program Managers and Project Managers leading various types of Business Improvement Programs
- Functional Business Managers
- Anyone with a desire to learn how statistical concepts can be applied to improve the quality of data and information and its various management processes

### Course Outline

#### **About the Course (8 min)**

#### **Introduction to SPC (38 min)**

- Basic Definitions
- Understanding Variation
- SPC and Quality Management

#### **Control Charts (56 min)**

- Basic Statistics
- Control Chart Fundamentals
- Types of Control Charts
- Control Chart Design Considerations

#### **SPC Applications (66 min)**

- Application Areas of SPC
- Role of SPC in Process Management
- Operations Improvement Example
- Real Time Process Monitoring Example
- Master Data Interface Monitoring Example
- Data Quality Monitoring Example
- Business Performance Monitoring Example

#### **Beyond the Basics (65 min)**

- Improving Control Chart Performance
- Analyzing Process Capability

## **Business Analytics Practices and Applications**

**Instructors: Bonnie Politano**

**Duration: 3 hours**

Businesses are forever challenged to provide better and better analytics to their stakeholders. This quest for more analytics can often lead to implementation headaches and less actual value added to an organization. Today's analytic problems require both a broad and deep understanding of all the analytic tools available in the market.

Further complicating this issue is the topic of Big Data Analytics. Some organizations treat big data as a new island of analytics, some try to combine Big Data and traditional analytics, while others totally ignore Big Data.

An all-encompassing approach to Advanced Analytics is the answer. An understanding of all the traditional techniques as well as Big Data techniques will provide a holistic view of how to solve today's complex analytic problems.

Through this online training course, you will learn all the components in today's market to address advanced analytics and a way to look holistically at how to apply these tools. You will also learn how to bridge the gap between traditional analytics and Big Data Analytics. It is not about the bells and whistles of the tools, but how to align the tools with the particular analytic need facing your organization.

### **You will learn:**

- Comprehensive classification of business analytics techniques
- When and how to apply advanced visualizations, data mining, and statistical analysis
- What is Big Data Analytics and how to combine it with traditional analytics
- How to use analysis chains to cross the boundary of Big Data and Data Warehousing

### **This course is geared towards:**

- Business analysts and business analytics professionals
- Managers looking to leverage advanced analytics
- IT professionals looking to combine Big Data and traditional data analytics
- Architects responsible for advanced analytics
- Anyone who uses analytics, visualization, or Big Data analytics

## **Course Outline**

### **About the Course (4 min)**

#### **Introduction (14 min)**

- What, How, & Why
- What Happened?
- How Did it Happen?
- Why Did it Happen?
- Cheat Sheet
- Tools
- Major Components of Analytics

#### **Advanced Visualization (39 min)**

- Definitions of Advanced Visualization
- Heat Maps
- Tree Maps
- Spark Lines
- Time Series
- Dials and Gauges
- Geographic Analysis

#### **Statistical Analysis, Data Mining, Unstructured Data Analytics (36 min)**

- Statistical Analysis
- Data Mining
- Unstructured Data Analytics

#### **Applying Analytics (77 min)**

- Getting Your Business Hat On
- Leading Vs. Lagging Indicators
- When Leading and Lagging is Not Enough
- New Paradigm
- Analysis Chains
- Use Case 1: Online Video Gaming
- Use Case 2: Engineering Example
- Use Case 3: Prison Systems
- Use Case 4: Hospitality
- Best Practices in Practice
- Areas for a Deeper Dive

## **Root Cause Analysis**

**Instructor: Dave Wells**

**Duration: 3 hours, 45 minutes**

Understanding why things happen is a fundamental management skill. For anyone who is challenged to manage data quality, business processes, or people and organizations, finding root causes is an essential skill. Understanding why is the key to knowing what to do – the core of sound decision making. But cause-and-effect relationships are elusive. Real causes are often difficult to find so we settle for easy answers. This leads to fixing symptoms rather than to solving problems, and to little or no gain where opportunity is abundant.

Root cause analysis is the alternative to easy answers. Looking beyond the apparent and obvious to find real causes brings insight and sows the seeds of foresight. Through this online training course you will discover the art and science of knowing why. Learn to apply linear thinking, lateral thinking, systems thinking, and critical thinking – independently and in combination – to get to the core of even the most vexing problems.

### **You will learn to:**

- Recognize and avoid logical fallacies
- Identify and distinguish between correlation, coincidence, and cause
- Perform fast and light causal analysis using the “5 whys” technique
- Explore linear cause-and-effect chains with fishbone diagramming
- Describe complex cause-effect networks with causal loop models
- Challenge and refine linear and loop models with lateral and critical thinking techniques
- Apply root cause analysis to effectively manage quality, processes, and organizations

### **This course is geared towards:**

- Data quality professionals and practitioners
- Quality management and quality improvement professionals
- Business analysts and business analytics professionals
- Managers and problem-solvers seeking insight and confidence in decision making
- Anyone responsible to manage data, information, people, process, or technology

## **Course Outline**

### **About the Course (5 min)**

#### **The Nature of Cause and Effect (23 min)**

- Definitions and Distinctions
- A First Look at Cause and Effect Models
- Cause and Effect Misconceptions

#### **RCA Concepts and Principles (22 Min)**

- The Purpose of RCA
- The Process of RCA
- Practical Application

#### **Basic Causal Modeling Techniques (55 min)**

- The Five Why's Method
- Fishbone Diagramming
- Five Why's and Fishbone Together

#### **Complex Causal Modeling Techniques (61 min)**

- Systems Thinking Concepts
- Causal Loop Models
- System Archetypes

#### **Verifying Cause & Effect Conclusions (57 min)**

- Nonsense and Logical Fallacies
- Fallacies and Thinking Styles
- Critical Thinking
- Lateral Thinking
- Course Summary
- Final Thoughts

## Web Analytics

**Instructor: Jake Dolezal**

**Duration: 3 hours**

The Web analytics practice has evolved rapidly as the landscape of Internet usage and devices continues to broaden. Today businesses collect an unprecedented amount of data about customers to seek deeper, more actionable insights. Many companies are integrating their Web analytics data with data from other sources and performing analytics to understand customer behavior and enable highly individualized marketing.

This 3 hour online training course provides an overview of Web analytics, as well as analytics techniques and applications that are suitable to the context of Web data. Theory and practice are illustrated by several real-life cases and demonstrations.

### **You will learn:**

- Gain a deep understanding of Web analytics as well as data about Online customer interactions
- Identify and interpret conventional and emerging Web analytics measurements
- Understand Web data collection and integration techniques and their potential applications and limitations
- Distinguish useful data from the "noise"
- Learn how to gain actionable insights for online marketing efforts with visitor-centric techniques such as profiles, patterns, goals, and outcomes
- What tools are needed on a Web analytics workbench

### **This course is geared towards:**

- BI professionals or data analysts with experience in other areas of customer data who are in the process of incorporating Web data into their warehouses or models, or developing custom BI for Web analytics
- CRM, marketing, sales and other business leaders who want to improve their understanding of Web analytics data and how actionable insights can be gleaned from it
- Technology and information leaders, managers, and professionals who want to learn more about current trends and broaden their understanding of Web analytics

## Course Outline

### **About the Course (7 min)**

#### **The Business Case for Web Analytics (18 min)**

- Value Density of Data
- Before Web Data was "Big"
- Data Value Increases with Volume
- Web Data is Too Valuable to Ignore

- Web Analytics "Moneyball"
- Analytics Needs of a Modern Business
- Web Analytics Health Check
- Building a Business Case
- Examples

#### **Anatomy of Web Analytics (29 min)**

- Page Views
- Sessions

#### **Dimensions and Metrics (29 min)**

- Dimensions Versus Metrics
- Metrics as Dimensions
- Common Dimensions and Metrics

#### **Visualizations (26 min)**

- Self Service Web Analytics
- Shrinking Business Proximity
- Business Consonance
- Cooperative Analytics Workflows
- Visualizations

#### **Web Analytics Setup (25 min)**

- Create a Google Analytics Account
- Tracking Code Snippet
- Tagging Pages
- Define Goals
- Back Up Your Data
- Mobile Visitors
- Disseminating Reports
- Configuring Google Analytics

#### **Taking the Next Steps (12 min)**

- Guidelines for Getting the Most
- Key Performance Indicators
- KPI Examples
- Google Universal Analytics
- Web Analytics from Sensors/IoT
- Integrated Web Analytics
- Web Analytics Additive to Other Data

#### **Advanced Integration of Web Analytics (38 min)**

- What is Hadoop?
- Hadoop and Data Integration
- Hadoop and Data Integration Use Cases
- Hadoop Tools for Data Integration
- Real-Life Examples
- Integrated Web Analytics: Types of Analysis
- Integrated Web Analytics: Methods of Analysis

## Data Mining in R

**Instructors: Deanne Larson**

**Duration: 3.5 hours**

With increasing interest in big data, the topic and skills of data mining get new attention, including strong interest in the value that can be derived from large data sets. Data mining is the process of selecting, exploring, and modeling large amounts of data to uncover previously unknown information for business benefit.

R is an open source software environment for statistical computing and graphics and is very popular with data scientists. R is being used for data analysis, extracting and transforming data, fitting models, drawing inferences, making predictions, plotting, and reporting results. This online training course will show you how to use R basics, work with data frames, data reshaping, basic statistics, graphing, linear models, non-linear models, clustering, and model diagnostics.

### **You will learn:**

- R basics such as basic math, data types, vectors, and calling functions
- Advanced data structures such as data frames, lists, and matrices
- R base graphics
- R basic statistics, correlation, and covariance
- Linear models such as decision trees and random forests
- To apply clustering using K-means
- Model diagnostics

### **This course is geared towards:**

- Data analysis and business analytics professionals
- Anyone interested to learn data mining techniques to find insights in data, and who has some statistical and programming experience

## Course Outline

### **About the Course (4 min)**

#### **Introduction to R Studio (20 min)**

- Overview
- What is R
- What is RStudio
- Why RStudio?
- Navigating RStudio
- R Environments

#### **R Basics (34 min)**

- Overview
- R Math
- R Data Types
- Working with Data Structures
- Loading Data
- Writing Data
- Summary

#### **Introduction to Data Mining in R (89 min)**

- Overview
- Exploratory Data Analysis
- Base Graphics in R
- Linear Regression
- Logistic Regression
- Summary

#### **Classification and Clustering Models in R (56 min)**

- Overview
- R Math
- R Data Types
- Working with Data Structures
- Loading Data
- Writing Data
- Summary

## Introduction to NoSQL

**Instructor: William McKnight**  
**Duration: 3 hours, 30 minutes**

In this informative class, learn about the emerging class of NoSQL technologies for managing operational big data. This includes key-value, column stores, document stores and graph databases. Learn about the ideal workloads for NoSQL in enterprises and where NoSQL adds value to an enterprise information strategy. Learn how to get the projects started or dropping the “not in production” label.

This “code-lite” session addresses the NoSQL community as well as the key user community, providing guidance on how NoSQL technologies work and how to penetrate the enterprise. This practical session will help you add a significant class of technologies into consideration to ensure information remains an unparalleled corporate asset.

### **You will learn:**

- Big data basics
- Enablers for NoSQL
- NoSQL data models: key-value, document, graph
- NoSQL usage patterns
- NoSQL database architectures
- Graph database modeling and architecture

### **This course is geared towards:**

- Big data basics
- Enablers for NoSQL
- NoSQL data models: key-value, document, graph
- NoSQL usage patterns
- NoSQL database architectures
- Graph database modeling and architecture

## Course Outline

### **Module 0. About the Course (8 min)**

#### **Module 1. Big Data Overview and Common Themes (49 min)**

- No More One Size Fits All
- The No Reference Architecture
- The Relational Database Data Page
- What Does Big Data Mean?
- Google Search Trends
- Why the Sudden Explosion of Interest
- What Happens in an Internet Minute?
- Sensors Data
- Customer Demands Drive Technology
- New Data Types
- Benefits of JSON
- Why NoSQL for Big Data?
- ACID
- Hadoop, MapReduce and Big Data
- Why NoSQL Not Hadoop for Operations
- MapReduce Part 1 & 2
- Scale Up vs. Scale Out

- DFS Block Placement Example
- File System Summary

#### **Module 2. NoSQL History & Jargon (17 min)**

- NoSQL Inspirations
- NoSQL History
- Google MapReducer Paper
- Google Bigtable Paper
- Memcached
- Schemaless
- Keeping it Simple
- CAP Theorem Part 1 & 2
- Automatic Sharding
- NoSQL Node Specification

#### **Module 3. Enablers for NoSQL (19 min)**

- Data Integration
- Data Visualization
- Infrastructure Strategy, Including Cloud
- Traditional Data Modeling
- Data Modeling for NoSQL
- NoSQL is for Applications, Not DW or ERP
- NoSQL Schemaless Data Modeling
- Force Fitting Unstructured Data NoSQL Modeling from RDBMS
- Security Concerns
- Easing Into Change
- What Will Motivate IT to Adopt NoSQL?

#### **Module 4. NoSQL Data Models (49 min)**

- Data Types and NoSQL Data Models
- Key Value Stores
- Document Stores
- Column Stores
- Operational Big Data Platform Solution
- Multiple NoSQL Solutions

#### **Module 5. Relationship Model: Graph Oriented (68 min)**

- Module Overview
- The Graph Database Revolution
- Relationship Data
- Graph Algorithms
- Use Cases
- Graph Modeling
- Property Graph Databases
- Semantic Graph Databases
- Graph Engines

#### **Module 6. The Future of NoSQL (8 min)**

- Overview
- Questions for your NoSQL Prospect Vendor
- Future of NoSQL
- Big Data and NoSQL Sales Projection
- The NoSQL Challenge
- Getting Started
- What Technology to Select

## OUR INSTRUCTORS

### Jake Dolezal

Jake Dolezal has over 16-years' experience in the Information Management field with expertise in business intelligence, analytics, data warehousing, statistics, data modeling and integration, data visualization, master data management, and data quality. Jake has experience across a broad array of industries, including: healthcare, education, government, manufacturing, engineering, hospitality and gaming. He is also the author of the book *I Survived Stats: A Less Frustrating Approach to Help Students Survive and Pass a Statistics Course* (forthcoming).

### Deanne Larson

Dr. Larson is an active practitioner and academic focusing on business intelligence and data warehousing with over 20 years of experience. She completed her doctorate in management in information technology leadership. She holds project management professional (PMP) and certified business intelligence professional (CBIP) certifications.

### William McKnight

William is president of McKnight Consulting Group, which includes service lines of Master Data Management, IT assessment, Big Data, Columnar Databases, Data Warehousing, and Business Intelligence. He functions as Strategist, Lead Enterprise Information Architect, and Program Manager for sites worldwide.

### Dorothy Miller

Dorothy is president of Redstone360, which specializes in the management of business intelligence. The consulting services, books, and unique self-guided software offered by Redstone360 are based on Dorothy's innovative and comprehensive programs for assessing and improving the value of BI products and services. Dorothy has over 30 years' experience in business, finance and information technology.

### Mark Peco

Mark Peco is an experienced consultant, educator, practitioner and manager in the fields of Business Intelligence and Process Improvement. He provides vision and leadership to projects operating and creating solutions at the intersection of Business and Technology. Mark is actively involved with clients working in the areas of Strategy Development, Process Improvement, Data Management and Business Intelligence.

## Bonnie Politano

Bonnie Politano is an experienced information technology practitioner and executive. She has worked with some of the largest private and public sector customers in all aspect transformational systems. This includes business intelligence, data warehousing, packaged applications, data management, data quality and custom application development. She actively works with customers in aligning business strategy with information technology enablers.

## Eric Siegel

Eric Siegel, Ph.D., is a seasoned consultant in data mining and analytics, an acclaimed industry instructor, and an award-winning teacher of graduate-level courses in these areas. An expert in data mining and predictive analytics, Dr. Siegel served as a computer science professor at Columbia University, where he won the engineering school's award for teaching undergraduate and graduate courses.

## K-Y Su

K-Y Su is a freelance locational data analyst with analytical experience in a variety of sectors and subjects, primarily nonprofit, and an interest in providing location intelligence services for business. K-Y has performed GIS analysis for World Vision (he launched their US disaster preparedness/response program's GIS capability), the Washington State Legislature and Department of Ecology, some environmental consulting firms, and several nonprofits and trade associations. K-Y has a BS in biochemistry and a certificate in GIS.

## Dave Wells

Dave Wells is a consultant, teacher, and practitioner in the field of information management. He brings to every endeavor a unique and balanced perspective about the relationships of business and technology. This perspective —refined through a career of more than thirty-five years that encompassed both business and technical roles— helps to align business and information technology in the most effective ways. Dave is a frequent contributor to trade publications and is a co-author of the book *BI Strategy: How to Create & Document*.

## George Williams

George Williams is a multi-disciplinary professional with nearly 30 years of experience as a Data Analyst, GIS Analyst, Geoscientist, and Project Manager. He currently works as a Data Program Manager with a prominent Marketing Data Management & Analytics firm in Seattle, WA. He has an educational background in Earth Sciences and Hazardous Materials Management along with 15 years of experience managing Geo-technical & Environmental Engineering projects.

## OUR CUSTOMERS

eLearningCurve's 3,000 students come from over 70 countries around the globe. Over 80% are enterprise customers—companies and governmental institutions who use our curriculum to educate many employees.

They range from smaller clients, or project teams, that enroll a handful of employees, to larger organizations that use our education as the backbone for their internal education programs for hundreds of employees. Our enterprise customers typically come from Fortune 500 and Global 1000 companies as well as government institutions in various countries. All major industries are represented – finance, insurance, oil, telecom, software development, consulting, government, industrial, etc...



## CUSTOMER STORIES

**“I would highly recommend eLearningCurve to anyone thinking of getting their certification in the data field”**

Having started the certification program with a very limited knowledge base in the area of data quality, I was a little intimidated and unsure of what to expect. My concerns were quickly alleviated by the quality of instructors and course materials and the superb delivery method of the classes. Classes in the curriculum built upon each other, giving you a great base in the topic and then continuing to build on that foundation. There were no "throwaway" classes in that principles were taught and reinforced as you progressed along your journey to certification.

*Joseph Fagnoni, CIMP – Data Quality, Data Governance, USA*

**“The selection of classes available through eLearningCurve have provided me incredible insight and more information on best practices...”**

In Australia, it is not often you get the chance to study under international industry thought leaders and gurus. Actually, I misspeak, it is often. It is whenever you like thanks to eLearningCurve's online delivery!

The material is challenging, thought provoking, and extremely informative. The tests require focus and understanding beyond the point of remembering the words said - they push you to apply the principles. You get plenty of time to access and review the material, so anyone can fit this in around their busy schedule.

*Stuart Brown, CIMP - Data Governance, Australia*

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## Enterprise Discounts

### About eLearningCurve

eLearningCurve offers comprehensive online education programs in various disciplines of information management. With eLearningCurve, you can take the courses you need when you need them from any place at any time. Study at your own pace, listen to the material many times, and test your knowledge through online exams to ensure maximum information comprehension and retention.

eLearningCurve also offers two robust certification programs: CIMP & CDS. Certified Information Management Professional (CIMP) builds upon education to certify knowledge and understanding of information management. Certified Data Steward (CDS) is a role-based certification designed for the fast growing data stewardship profession.

Finally, eLearningCurve's Enterprise Program is a flexible, scalable, cost-effective solution for teams and enterprises.