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Business Intelligence & Analytics

Career Paths and Industry Trends



Agenda

- Introduction
- The BI Job Market
- Analytical Processes
- Data Science Roles
- Analytics Products & Services
- Analytical Platforms

Data Crunchers In Demand

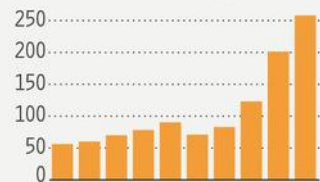
Geek Chic

As data—and demands for data analysis—proliferate, so do students pursuing the field.

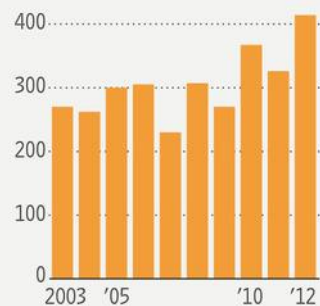
Harvard University Statistics concentrators



University of California, Berkeley Statistics majors, spring semester

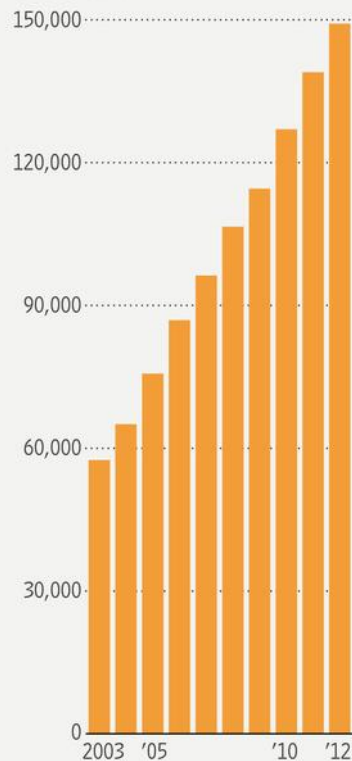


Williams College Intro-statistics class enrollment



Sources: the schools; the College Board (AP exams)

Advanced Placement tests taken in statistics



The Wall Street Journal

Data Scientist

Deemed “the sexiest job of the 21st century” by [Harvard Business Review](#), data scientists bridge the gap between the skills of a statistician, a computer scientist and an MBA.

Salaries vary from \$110,000 to \$140,000.

Data Mining Job Prospects

- Gartner says worldwide IT spending will increase 3.8 percent in 2013 to reach \$3.7 trillion, and that excitement for big data is leading the way.
- By 2015, 4.4 million jobs will be created to support big data.
- Over 90-percent of the NCSU Class of 2013 have received one or more offers of employment, and over 80-percent have accepted new positions. The average base salary reached an all-time high of \$96,900, an increase of nearly 9% over the Class of 2012.

A Brief Overview of Data Mining

Innovation	Business Question	Technologies
Data Collection (1960's)	"What was total revenue in the past 5 years?"	Mainframe computers, tape backup
Data Access (1980's)	"What were unit sales in New England last March?"	RDBMS, SQL, ODBC
Data Warehousing (1990's)	"What were unit sales in New England last March? Drill down to Boston"	OLAP, multi-dimensional databases, data warehouses
Data Mining (Today)	"What's likely to happen to Boston sales next month and why?"	Advanced algorithms, massively parallel databases, Big Data

<http://www.thearling.com/>

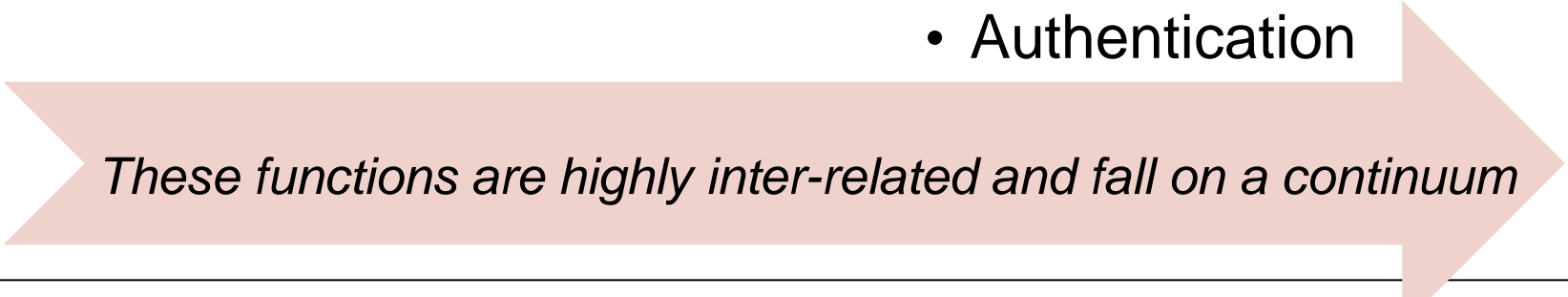
Business Intelligence & Data Mining Services

Descriptive

- Dashboards
- Process mining
- Text mining
- Business performance management
- Benchmarking

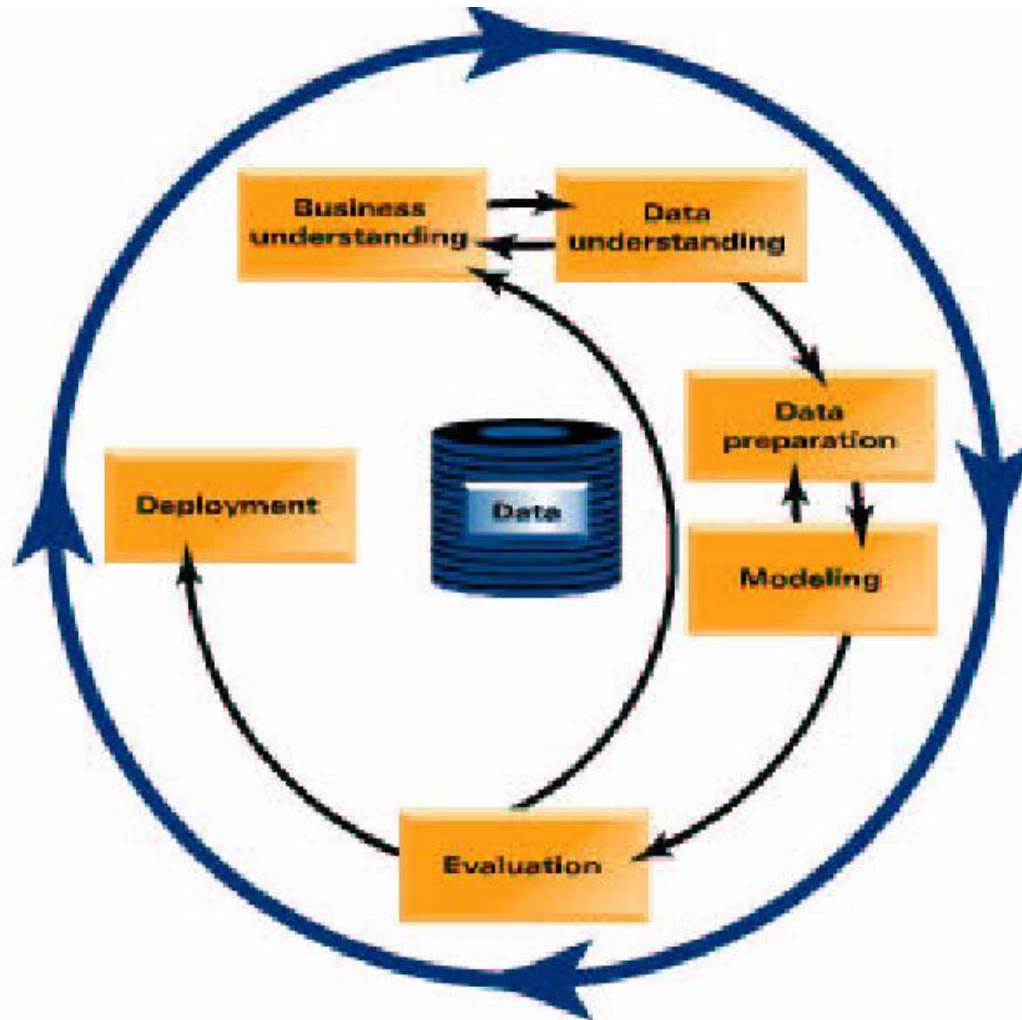
Predictive

- Predictive analytics
- Prescriptive analytics
- Realtime scoring
- Online analytical processing
- Ranking algorithms
- Authentication



These functions are highly inter-related and fall on a continuum

CRISP-DM: Data Mining Methodology is Highly Iterative

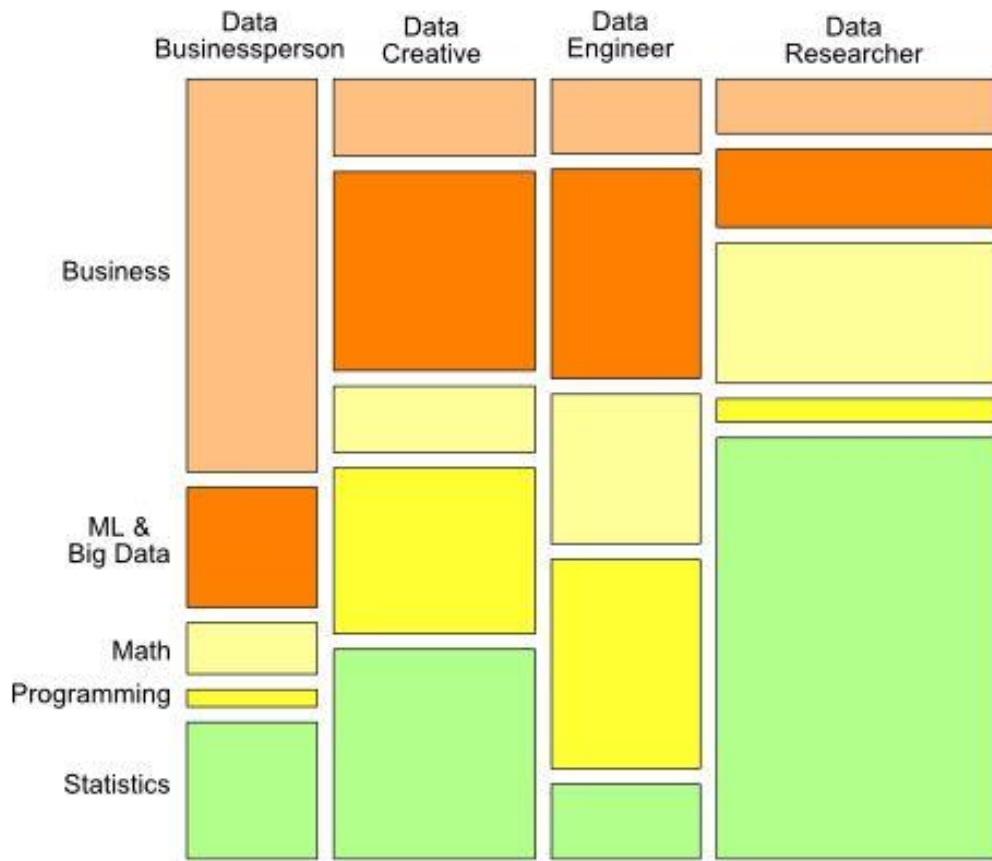


- Up to 60% of the work effort in a major data mining project is typically related to data preparation and cleansing
- Be prepared for the unexpected when working with real-world data

ftp://ftp.software.ibm.com/software/.../Modeler/.../CRISP-DM...

Harlan Harris:

The Data Scientist Mashup



Data Scientists blend 3 core skills in a surprising number of ways:

- Coding
- Machine Learning (math)
- Domain Knowledge

Data Scientists Work in Teams

Job Categories

- Business Analyst
- Data Analyst
- Data Engineer
- Data Scientist
- Marketing
- Sales
- Statistician

Many major organizations in St. Louis are actively using data mining in their core line of business





<http://www.datasciencecentral.com/>



Statistical Business Analyst

SAS Global Certification program

 Choose your location 



SAS Certified Statistical Business Analyst Using SAS 9: Regression and Modeling Credential – Available now

The Statistical Business Analyst credential is appropriate for professionals who solve business problems by performing statistical analyses and predictive modeling using SAS/STAT software.

[Overview](#) [Exam Content](#) [Exam Preparation](#) [Exam Registration](#) [Exam Day](#) [After the Exam](#)


SAS statistical software enables companies to learn from, utilize, and improve on knowledge gained from vast stores of data. The SAS Certified Statistical Business Analyst Using SAS 9: Regression and Modeling credential is designed for SAS professionals that use SAS/STAT software to conduct and interpret complex statistical data analysis. The credential focuses on linear and logistic regression techniques used to create predictive models. A thorough understanding of fundamental statistics is also important.

A candidate for this exam should have experience in

- analysis of variance
- linear and logistic regression
- preparing inputs for predictive models
- measuring model performance.

Statistical Programmer

SAS Global Certification program

 Choose your location



SAS Certified Base Programmer for SAS 9 Credential

This credential is designed for programmers, analysts, data managers or anyone writing SAS programs to access and manage data to perform queries and analyses. This and the [SAS Certified Advanced Programmer for SAS 9](#) credentials are appropriate as foundation knowledge for many other job roles.

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The SAS Certified Base Programmer for SAS 9 credential is the ideal certification for those relatively new to SAS programming or new to SAS certification. It is also the principle certification for other advanced certifications available from SAS. Candidates should be familiar with the enhancements and new functionality that are available in SAS 9.3.

Successful candidates should have experience in programming and data management using SAS 9 and should be able to:

- import and export raw data files
- manipulate and transform data
- combine SAS data sets
- create basic detail and summary reports using SAS procedures
- identify and correct data, syntax and programming logic errors.

Data Integration Developer

SAS Global Certification program

 Choose your location 



SAS Certified Data Integration Developer for SAS 9 Credential

This credential is designed for those SAS users leveraging the platform for SAS Business Analytics to collect, store, and cleanse data in preparation for reporting and analysis.

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The SAS Data Integration Development for SAS 9 exam will test the candidate's ability to apply the skills and knowledge necessary for Data Integration Development in the SAS environment.

Successful candidates should be skilled in tasks such as:

- Defining architecture of the platform for SAS Business Analytics
- Creating Metadata for Source and Target Data
- Creating Metadata for Target Data and Jobs
- Working with Transformations
- Working with Tables and Table Loader Transformation
- Working with Slowly Changing Dimensions
- Defining Generated Transformations
- Deploying Jobs

Predictive Modeler

SAS Global Certification program



SAS Certified Predictive Modeler using SAS Enterprise Miner 7 Credential

This credential is designed for SAS Enterprise Miner users who perform predictive analytics.

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In today's global economy businesses depend on advanced analytics to give them a competitive advantage. The development and implementation of models to predict targeted outcomes is quickly becoming a staple of today's most successful companies, causing this performance-based credential to be one of the fastest growing certifications available from SAS.

A candidate for this exam should have the ability to:

- prepare data
- build predictive models
- assess models
- score new data sets
- implement models.

During this performance-based examination, candidates will use SAS Enterprise Miner to perform the examination tasks. It is essential that the candidate have a firm understanding and mastery of the functionalities for predictive modeling available in SAS Enterprise Miner 7.

A Typical Product Developer / Data Scientist Role

Job Details

Facebook is seeking a Data Scientist to join our Data Science team. Individuals in this role are expected to be comfortable working as a software engineer and a quantitative researcher. The ideal candidate will have a keen interest in the study of an online social network, and a passion for identifying and answering questions that help us build the best products.

Responsibilities

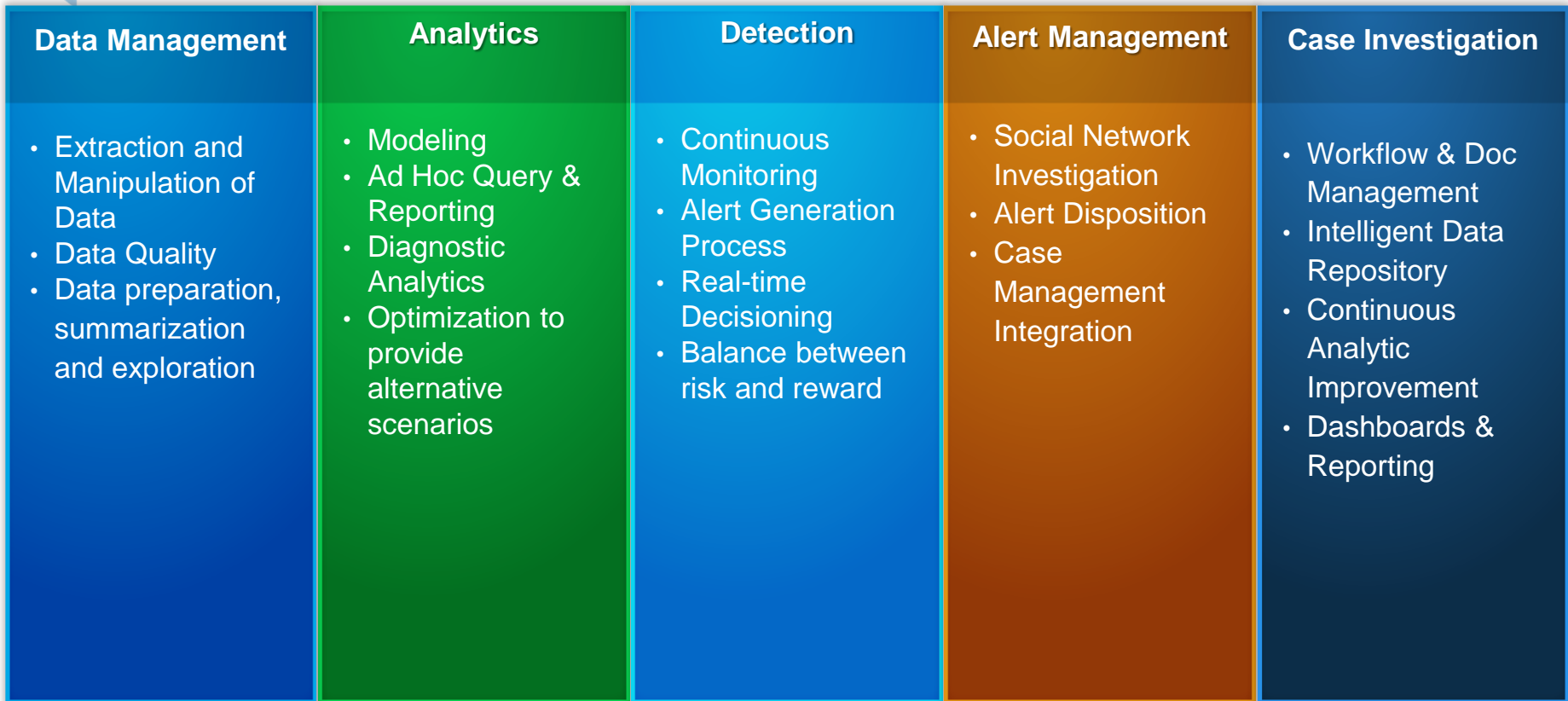
- Work closely with a product engineering team to identify and answer important product questions
- Answer product questions by using appropriate statistical techniques on available data
- Communicate findings to product managers and engineers
- Drive the collection of new data and the refinement of existing data sources
- Analyze and interpret the results of product experiments
- Develop best practices for instrumentation and experimentation and communicate those to product engineering teams

Requirements

- M.S. or Ph.D. in a relevant technical field, or 4+ years experience in a relevant role
- Extensive experience solving analytical problems using quantitative approaches
- Comfort manipulating and analyzing complex, high-volume, high-dimensionality data from varying sources
- A strong passion for empirical research and for answering hard questions with data
- A flexible analytic approach that allows for results at varying levels of precision
- Ability to communicate complex quantitative analysis in a clear, precise, and actionable manner
- Fluency with at least one scripting language such as Python or PHP
- Familiarity with relational databases and SQL
- Expert knowledge of an analysis tool such as R, Matlab, or SAS
- Experience working with large data sets, experience working with distributed computing tools a plus (Map/Reduce, Hadoop, Hive, etc.)

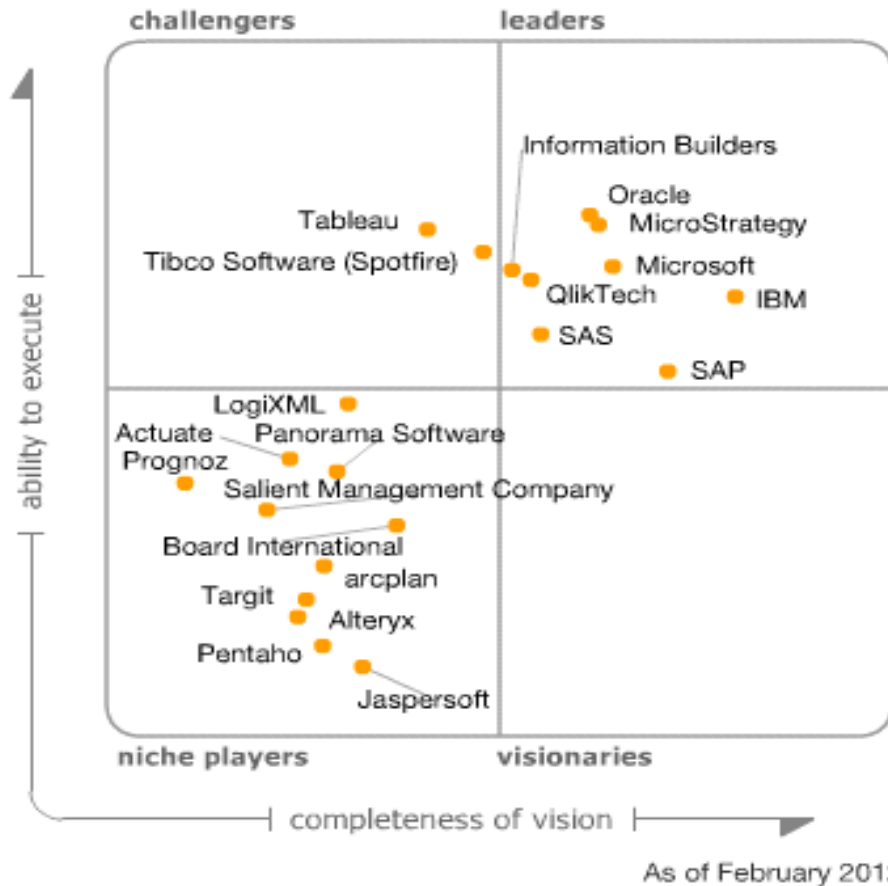
How Major Financial Institutions Use SAS

SAS Fraud Management - End-To-End Value Chain



STREAM IT - SCORE IT - STORE IT

Gartner Magic Quadrant for Business Intelligence Platforms



BI Platform Decision Makers:

- IT — 38.9%
- Business user — 20.8%
- Blended business and IT responsibilities — 40.3%

Q&A

- Your questions?