

Business Analytics Minor Information Night

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Job Market



Open jobs asking for analytics skills in 2015

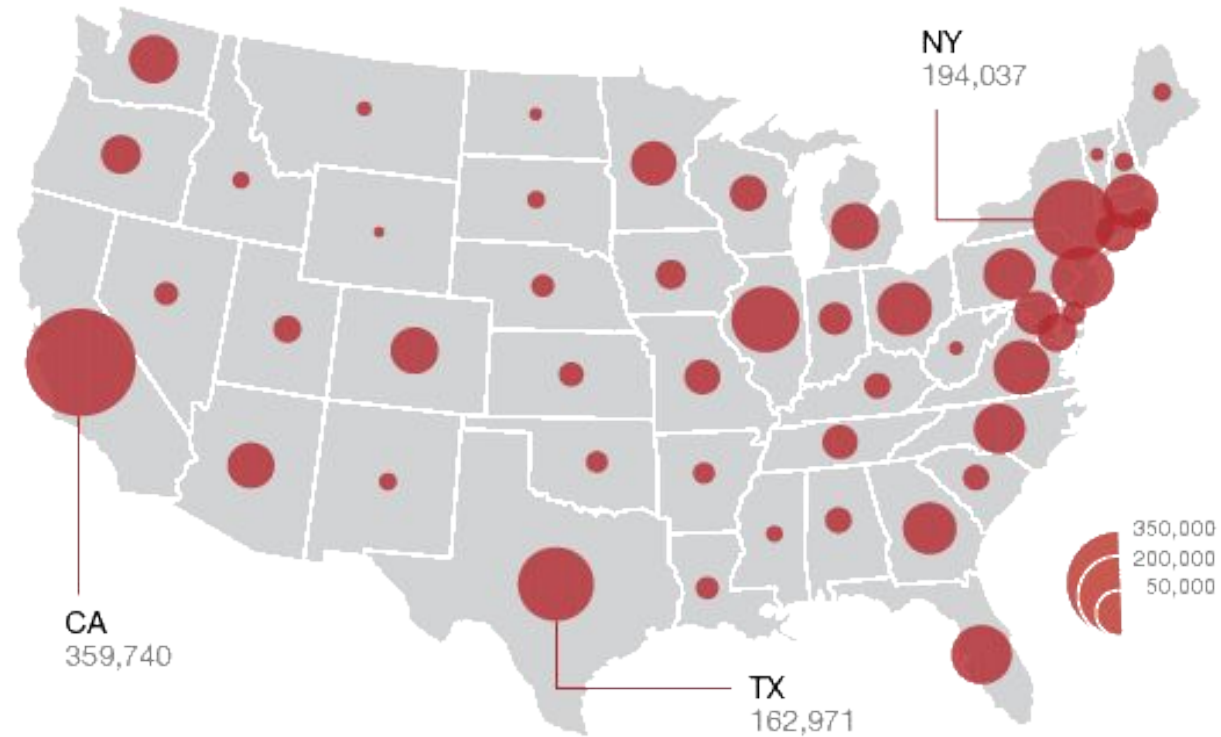
2.3M

Forecast of population with analytics skills by 2018

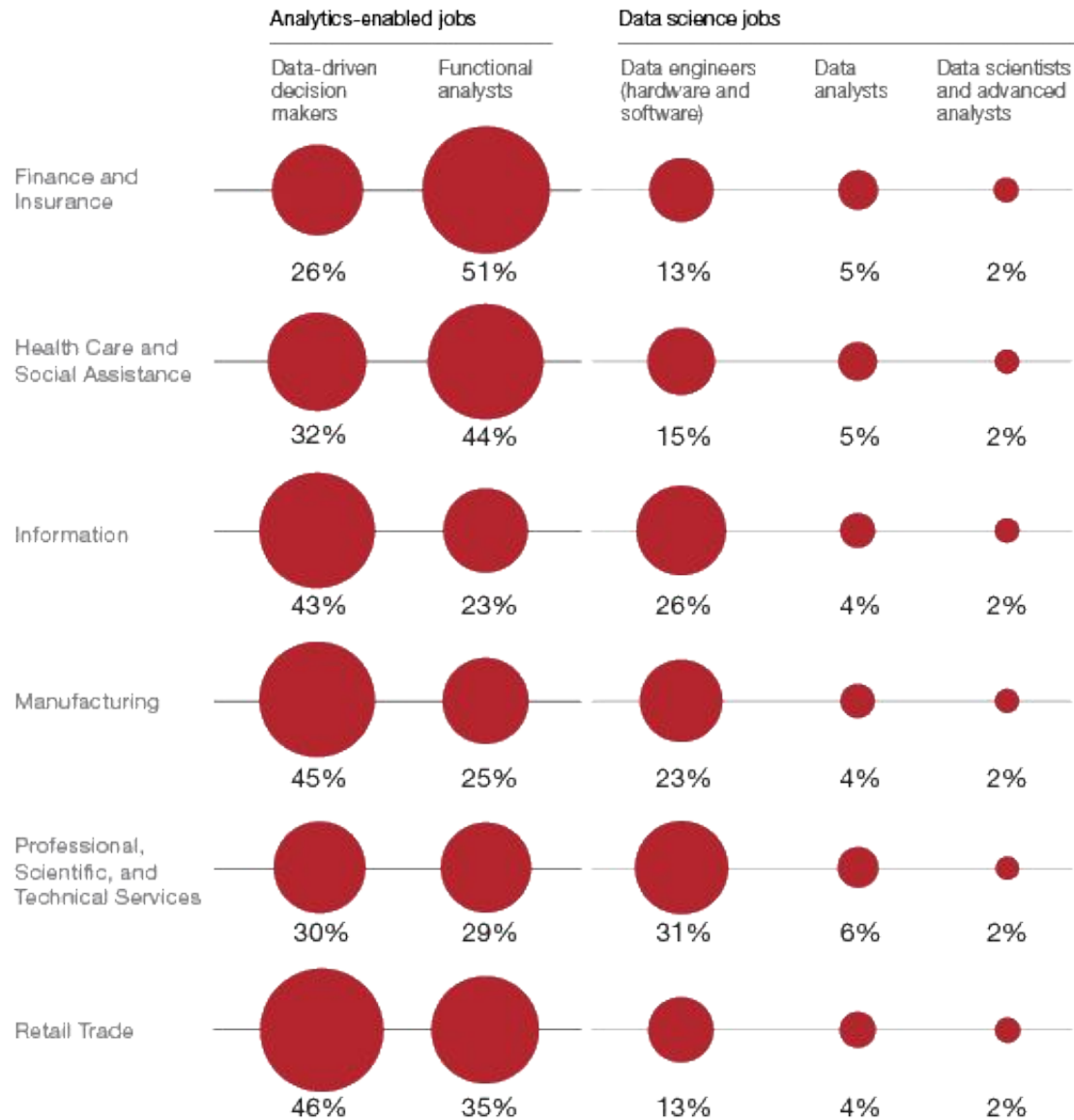
2.9M

Notes: US data only.
Source: Burning Glass Technologies analysis of 28.9 million US job postings from 2015. McKinsey Global Institute, Big Data: The next frontier for innovation, competition, and productivity (June 2011).

Most of jobs located in the Bay Area



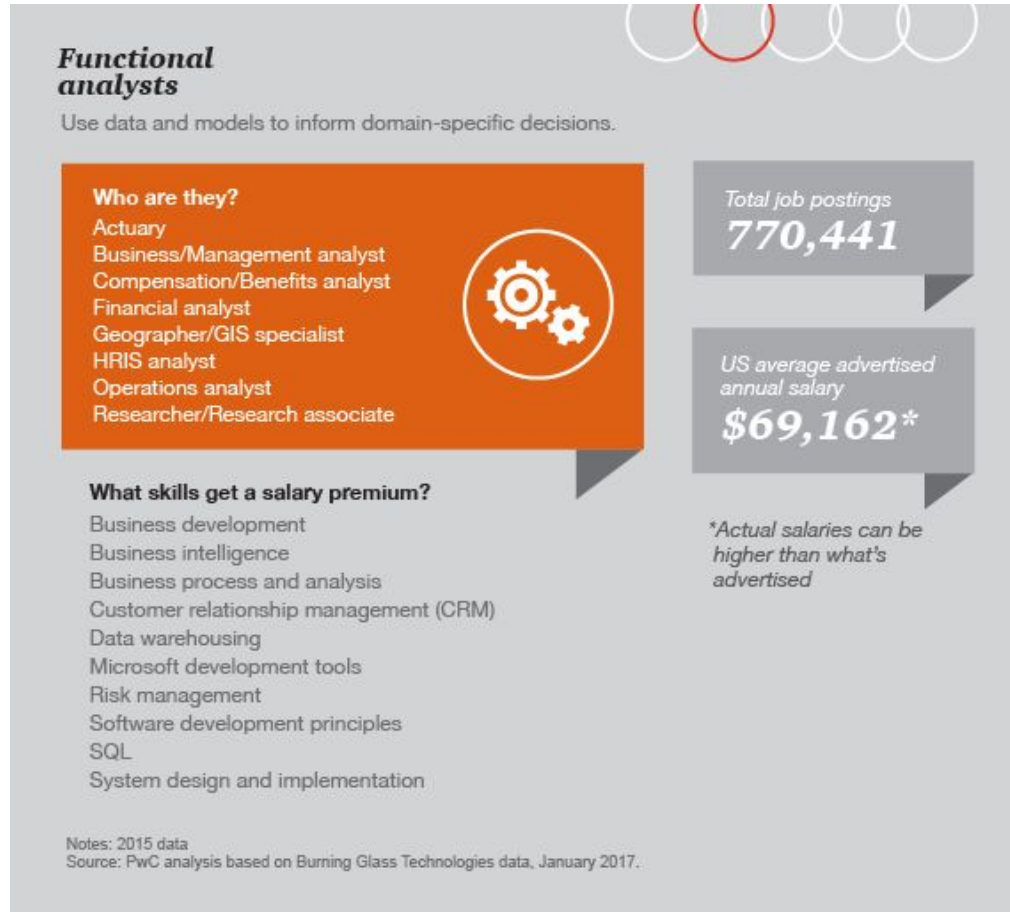
Source: PwC analysis based on Burning Glass Technologies data, January 2017.



Companies look mostly for business people with analytics skills, not just analysts

Notes: Job category of analytics managers not shown. Totals may not equal 100%.
 Source: PwC analysis based on Burning Glass Technologies data, January 2017.
 Number of postings: Finance and Insurance (535,883); Healthcare and Social Assistance (100,900); Information (690,833); Manufacturing (237,484); Professional, Scientific, and Technical Services (511,947); Retail Trade (101,711).

What do people do and earn in the data science and analytics field?



What do people do and earn in the data science and analytics field?

Data engineers (hardware and software)

Make good data available through the design, construction, and maintenance of organizational data and analytical infrastructure.

Who are they?

- Business intelligence architect
- Computer systems engineer
- Data warehousing specialist
- Data administrator
- Database architect
- Systems analyst



Total job postings
558,326

US average advertised
annual salary
\$78,553*

**Actual salaries can be higher than what's advertised*

What skills get a salary premium?

- Big data
- Business strategy
- Cloud solutions
- Data visualization
- Data warehousing
- Scripting languages
- Operating systems
- Optimization
- Product management
- Programming principles

Notes: 2015 data
Source: PwC analysis based on Burning Glass Technologies data, January 2017.

Data analysts

Leverage data analysis and modeling techniques to solve problems.

Who are they?

- Data mining analyst
- Business intelligence analyst



Total job postings
124,325

US average advertised
annual salary
\$69,949*

**Actual salaries can be higher than what's advertised*

What skills get a salary premium?

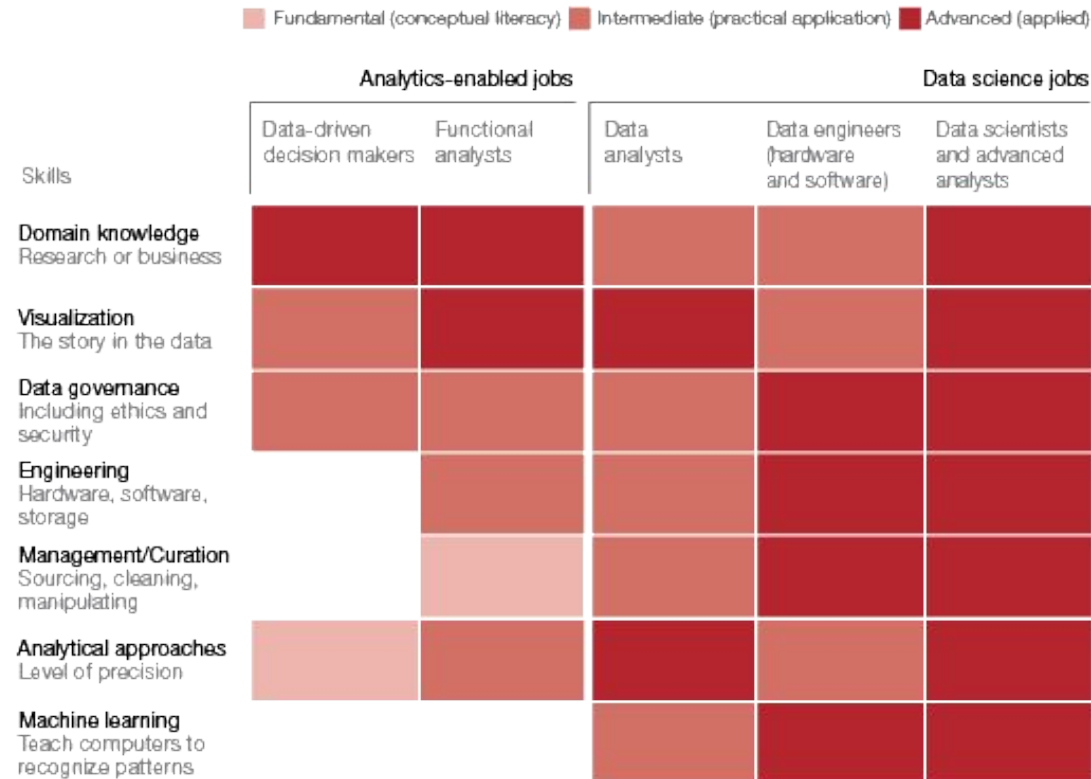
- Business intelligence
- Data visualization
- Data warehousing
- Extraction, transformation, and loading (ETL)
- Operating systems
- Optimization
- Scripting languages
- Software development principles
- Statistical software
- ERP systems (SAP or Oracle)

Notes: 2015 data
Source: PwC analysis based on Burning Glass data, December 2016.

What do people do and earn in the data science and analytics field?



What skills you need?

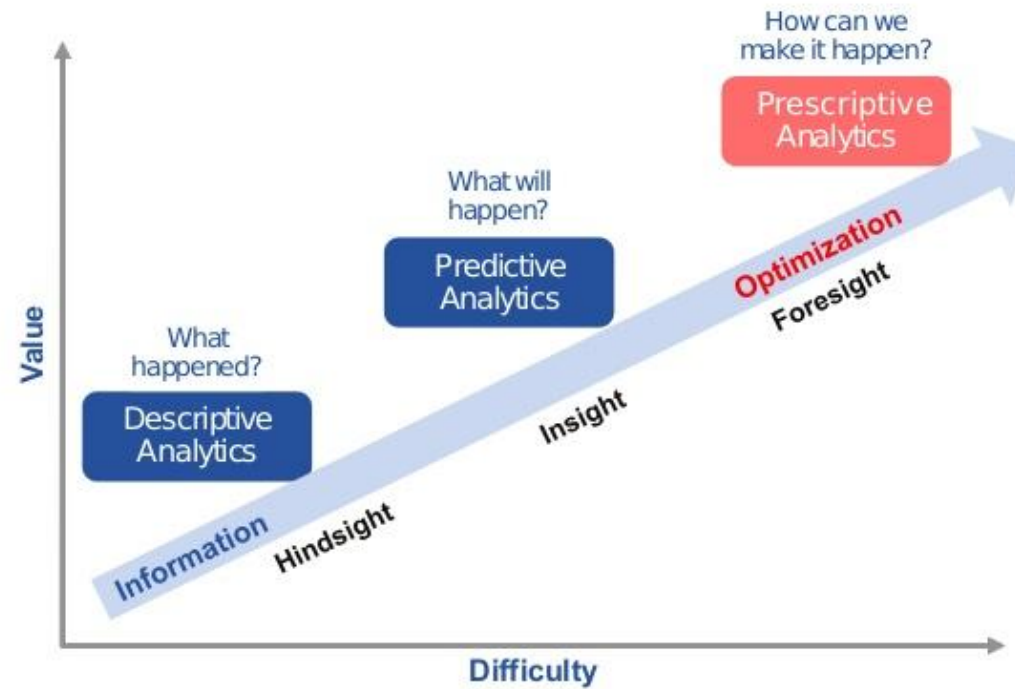


Source: PwC analysis based on Burning Glass Technologies data, January 2017.

SCU Business Analytics Minor

- June 2017 - approved by the Santa Clara University Academic Affair Committee
- Spring 2018 - accept student
- Fall 2018 - offer courses

Business Analytics

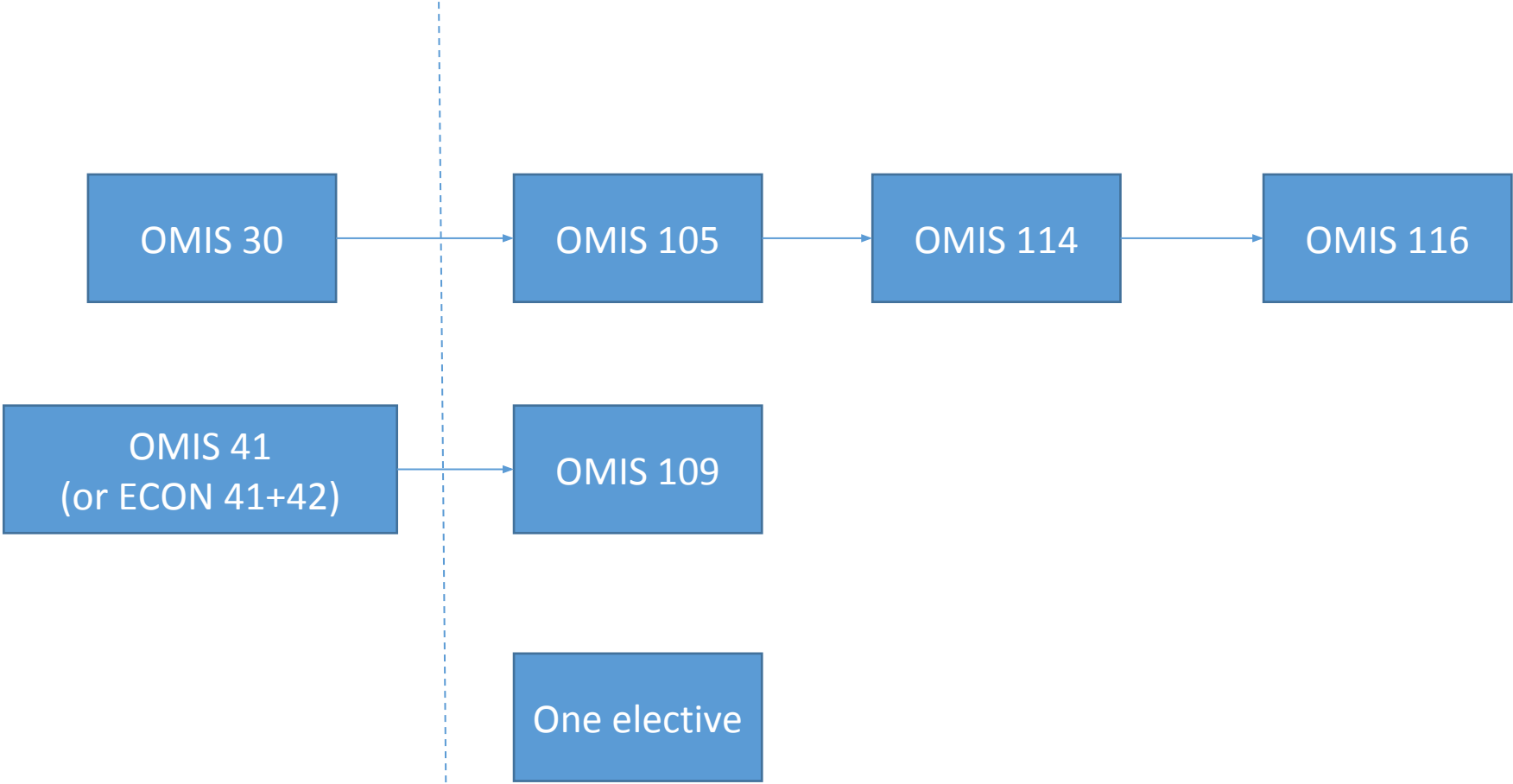


	Descriptive Analytics	Predictive Analytics	Prescriptive Analytics
Which questions are answered?	What happened? How many customers? Where revenue is less? Why it is so?	What will happen next? What trends will continue? What if we change pricing?	What is the best course of action for a given situation? Which offer is most likely to be accepted by a particular customer?
How it is done?	Use of KPIs, dashboards, and charts	Use of statistical methods and predictive modeling to understand the relationships in input data & predict the outcomes.	Use of advanced statistical optimization and simulation techniques with inputs and constraints to recommend what actions to be taken.
General examples	How many customers have churned? Why did they churn?	How many customers will churn in the next few months?	What actions need to be taken to retain these predicted churners?

BA Minor Curriculum

- 4 required courses
 - OMIS 105 Database Management Systems (Prerequisite: OMIS 30 Introduction to Programming)
 - OMIS 114 Data Science with Python (Prerequisite: OMIS 30 Introduction to Programming)
 - Offered in Fall 2018 and Winter 2019
 - OMIS 109 Prescriptive Analytics (Prerequisite: OMIS 41 or ECON 41 and 42)
 - Fall 2019 offered the first time
 - OMIS 115 Predictive Analytics (Prerequisite: OMIS 41 or ECON 41 and 42 , OMIS 114)
 - Spring 2019 offered the first time
- 1 elective
 - OMIS 113 Data Warehousing and Business Intelligence
 - ACTG 134 Accounting Information
 - ACTG 155 Financial Information Systems (cross-list with OMIS 150)
 - ECON 173 Applied Econometrics
 - ECON 174 Applied Times Series Analysis
 - FNCE 146 Introduction to Risk Management
 - FNCE 148 Risk Management and Insurance
 - MKTG 182 Analysis for Marketing Decisions

Suggested Course Plan



Course Planning

- Prerequisite
 - OMIS 30 Introduction to Programming – offered every quarter
 - OMIS 41 Statistics and Data Analytics II – offered every quarter
- 4 required courses
 - OMIS 105 Database Management Systems – offered every quarter
 - OMIS 114 Data Science with Python - Offered in Fall 2018 and Winter 2019
 - OMIS 109 Prescriptive Analytics – Offered in Fall 2019
 - OMIS 116 Predictive Analytics – Offered in Spring 2019

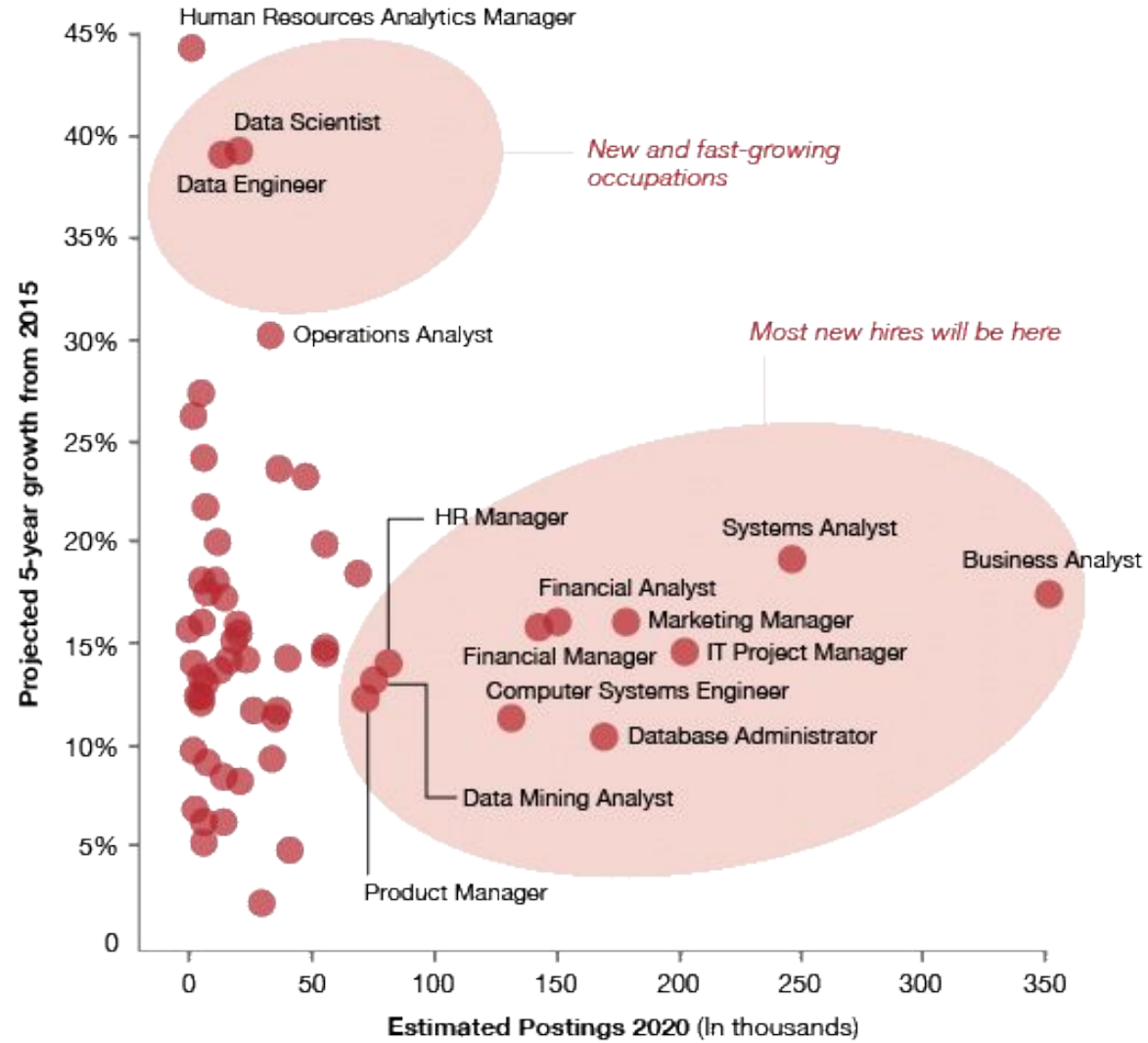
Program Comparison

MIS Major	MIS Minor	BA Minor	Economics Concentration in Data Analyst
<p>Four Required</p> <ul style="list-style-type: none"> • OMIS 30 Introduction to Programming • OMIS 105 Database Management Systems • OMIS 106 System Analysis and Design • OMIS 107 Systems Programming <p>Two electives out of 12 courses</p>	<p>Two Required</p> <ul style="list-style-type: none"> • OMIS 30 Introduction to Programming • OMIS 105 Database Management Systems <p>Three electives out of 14 courses</p>	<p>Four Required</p> <ul style="list-style-type: none"> • OMIS 105 Database Management Systems • OMIS 114 Data Science with Python OMIS • 109 Prescriptive Analytics • OMIS 115 Predictive Analytics <p>One elective out of 8 courses</p>	<p>Required</p> <ul style="list-style-type: none"> • ECON 43 Data Manipulation and Visualization in Economics <p>One of</p> <ul style="list-style-type: none"> • ECON 173 Applied Econometrics • ECON 174 Applied Time Series Analysis <p>Three of</p> <ul style="list-style-type: none"> • ECON 134 African Economic Development • ECON 135 Gender Issues in the Developing World • ECON 142 Economics of Sport • ECON 150 Labor Economics • ECON 166 Race, Ethnicity, and Gender in the U.S. Economy • ECON 173 Applied Econometrics or ECON 174 Applied Time Series Analysis (if both taken) • ECON 186 Economics of Digitization • ECON 187 Dynamic Macroeconomics • ECON 188 Advanced Macroeconomics: Theory and Empirics

Jobs in Management Information Systems (MIS)

- System Administrator
- Network Administrator
- Support Analyst
- Support Technician
- Project Coordinator
- Project Manager
- Technical Support Specialist
- IT User Liaison
- Database Administrator
- Systems Developer
- Computer Systems Analyst
- Consultant
- Business Analyst
- Business System Analyst
- Manager of Information Systems
- System Analyst
- IT Consultant
- IT Development Project Leader
- IT User Liaison
- Business Intelligence Analyst
- Operations Research Analysis
- Sales Engineer
- Technical Support
- Network Analyst

The 2020 estimate calls for 2.7 million job postings for data science and analytics roles



Note: Each dot represents an occupation in the US jobs market where data science and analytics skills are required.
Source: PwC analysis based on Burning Glass Technologies data, January 2017.