EXPLORING
THE DATA AND ANALYTICS SKILLS GAP:
A GUIDE TO GROWING YOUR CAREER IN DATA

Presented by
Capella University
SAS
While the salary for a data expert is high, it can be a rewarding field in other ways as well. There are opportunities in many industries to work on projects that make a difference in people's lives. For instance:

**Analytics is reducing fraud in banking, government and health care, bolstering cybersecurity initiatives across industries, and enhancing law enforcement and national security efforts.**

A county emergency medical services department revised its CPR protocols based on an analysis of historical data on CPR treatments and patient outcomes. One hundred people left the hospital that would have died under the previous guidelines.

An international relief organization visualized shelter data following Typhoon Haiyan and the Nepal earthquakes to identify sites with the greatest needs.

Analytics is helping departments of social services anticipate and prevent child abuse-and-neglect tragedies, and helping parents meet child support requirements.

A career in big data opens up a world of rewarding possibilities.
WHAT IS BIG DATA?

Big data makes sense of and creates value from terabytes of structured and unstructured data. Big data systems and tools make it possible to quickly and accurately manage and analyze data. The conclusions drawn from the analysis of big data help organizations to improve efficiencies and make timely decisions.
INDUSTRIES IN NEED OF DATA AND ANALYTICS PROFESSIONALS

Nearly every industry can benefit from the analysis of big data. According to Forbes, business sectors that stand to see the biggest gains from analysis of big data include:

- Professional, Scientific, and Technical Services
- Manufacturing
- Retail
- Health Care
- Information Technologies
- Finance and Insurance
- Government
- Education

WHY BIG DATA IS A BIG DEAL

Companies and organizations are interested in big data for many reasons.

- Data **drives** workforce efficiency and can improve productivity.
- Data **improves the decision-making process**.
- Data can **build predictive models**.
- Data helps **develop visuals** to consume complex information.
- Data can be used to **combat** waste, fraud, and abuse.
- Organizations can **reduce costs** and risk with decisions informed by data.

“Companies that successfully combine analytics skills with existing business knowledge are more likely to create a competitive advantage with data.”

The heart of data management is making data accessible, reliable, secure, and useful for an organization, enabling data analytics and business intelligence practitioners to ascertain what happened, what is happening, and what will happen. It centers on the development, execution, and supervision of efforts to control, protect, deliver, and enhance the value of data and information assets.

DM professionals ensure the foundations of big data are stable and secure.

Common DM Job Titles:
- Database Administrator
- Database Analyst
- Database Specialist
- Database Developer
- Data Quality Analyst

Data analytics finds insights in data by identifying patterns and recurrences of facts. Such analysis allows them to develop models that businesses can use to test hypotheses regarding challenges, solutions, and opportunities. Vast amounts of raw data are transformed into constructive, actionable information for business purposes.

DA professionals are miners. They explore data, discover insights, and publish results in the form of reports.

Common DA Job Titles:
- Data Scientist
- Data Analyst
- Data Architect
- Data Miner
- Data Specialist
- Analytics Software Engineer
- Data Consultant

Through the analysis of data drawn from reporting histories and projected trends, business intelligence seeks to define business problems and shape solutions. The discipline involves data mining, online analytical processing, querying, and reporting. Companies use BI to improve decision-making, cut costs, and identify new business opportunities.

BI professionals tell stories. They monitor metrics, analyze data anomalies, drill into the details, and illustrate the findings.

Common BI Job Titles:
- Business Intelligence Analyst
- Data Specialist
- Data Analyst
- Business Intelligence Developer
- Business Analyst
- Business Intelligence Consultant
THE DEMAND FOR DATA AND ANALYTICS PROFESSIONALS

According to a recent McKinsey & Company big data report, by 2018, the U.S. will face a shortage of 140,000 to 190,000 professionals with deep analytical skills.

1.5 million managers and analysts who know how to use big data to make effective decisions will also be needed.

More than 65% of organizations lack enough professionals with the skills—such as critical thinking and analytical tool training—to analyze and glean insights from data. Skilled business intelligence, data analytics, and data management professionals are needed to fill this gap.

SOURCE: McKinsey Global Institute, 2011

THE NEED FOR TRAINING AND EDUCATION

The biggest challenge in closing this skills gap is lack of adequate training.

Surveys suggest that not enough graduate programs exist to meet the demand for future talent. Additionally, the demand for seats outpaces many programs’ available capacity.

To become qualified BI analysts or data scientists, students need coursework covering topics including but not limited to:

- Databases
- Enterprise data
- Data mining
- Statistics
- Decision modeling
- Predictive analytics
- Business process modeling
- Critical performance management
- Data visualization
- Risk analytics
- Web analytics

“Other countries have moved ahead of us in the training of scientists and engineers.

We need to be graduating at least 10 percent more people in science, technology, engineering and mathematics.”

JIM GOODNIGHT
SAS CEO

SOURCE: McKinsey Global Institute, 2011

WHO GETS INTO BIG DATA

The Harvard Business Review has called the position of business analyst or data scientist the “sexiest job of the 21st century.” What’s more, jobs in the field pay generously.

Many professionals currently working in big data started in other fields and transitioned into data. Backgrounds that often lead to data careers include:

- Finance
- Economics
- Marketing
- Accounting
- Information Technology

“Qualified big data analysts command impressive salaries. Someone right out of school can earn $125,000, while someone with a year or two of experience and a demonstrated skill set can easily make double that.”

DEGREES THAT PROPEL CAREERS

As in most technical fields, a degree and experience are necessary to support career growth in data analytics. Here’s what you need to know about the degrees that lead to big data careers:

**BACHELOR’S DEGREE**

**DESCRIPTIVE ANALYTICS**
Analyze data to determine what happened or is happening.

**ASSOCIATE TO ANALYST**

**MASTER’S DEGREE**

**PREDICTIVE ANALYTICS**
Examine data to discover if trends will continue into the future.

**ANALYST TO SENIOR ANALYST**

**DOCTORAL**

**PRESCRIPTIVE ANALYTICS**
Study data to determine the best of course of action in the future.

**CONSULTANT, PRINCIPAL, DATA SCIENTIST**
WHAT SKILLS ARE NEEDED TO WORK IN BIG DATA?

Employers are looking for skilled data professionals who stand head-and-shoulders above the competition. Workers must have deep technical knowledge, as well as business acumen and excellent people skills. Requirements include the ability to:

- LEVERAGE business intelligence tools.
- WORK with analytics technologies.
- CONNECT data to business objectives.
- DEVELOP applications.
- MANAGE data warehousing/data manipulation.
- UNDERSTAND such programming tools as C++, Java, Python, Hadoop, or R.
- CREATE data-driven performance metrics.
- VISUALIZE data to help leaders understand key findings.
- THINK critically and solve problems.
- COMMUNICATE effectively with stakeholders and leaders, connecting findings to business goals.
- COMMUNICATE technical information to a nontechnical audience.
- BUILD consensus among decision-makers.
- WORK and lead in a team environment.
WHY SHOULD YOU CHOOSE CAPELLA?

**Degree programs** aligned to industry standards.

**Learning experiences** that can be applied immediately in the field.

**Up-to-date curriculum** and knowledgeable faculty who are experts in the field.

**The most direct path** to your goals with 100% online courses for the ultimate flexibility.

**An affordable education** with many financial support options.
WHAT SETS CAPELLA APART?

Degrees that center on in-demand specialties.

DATA ANALYTICS
- Master of Science in Analytics
- Bachelor of Science in IT, Data Analytics Minor

DATA MANAGEMENT
- Bachelor of Science in IT, Data Management Minor

BUSINESS INTELLIGENCE
- Doctor of Business Administration
- Master of Business Administration
- Bachelor of Science in Business, Business Intelligence Minor
- Graduate Certificate
Capella University’s collaboration with SAS provides students the in-demand competencies to address the data and analytics skills gap. Plus they can earn a voucher for the SAS Base Programming for SAS 9 certification exam on the way to their degree—at no additional cost.

Capella’s MS in Analytics was developed in collaboration with SAS, the leader in business analytics software and services and the largest independent vendor in the business intelligence sector. MS Analytics, BS Business Intelligence, and BS Data Analytics students will have free access to SAS tools and e-learning courses as part of their program, which provide foundational knowledge necessary for certification for the following:

- MS Analytics–SAS Base Programmer, Advanced Programmer, Certified Predictive Modeler, and Business Analyst certifications
- BS Business Intelligence–SAS Base Programmer Professional certification
- BS Data Analytics–SAS Base Programmer Professional certification
The Accreditation Council for Business Schools & Programs (ACBSP) has accredited Capella University business programs and select specializations. The full accreditation statement and the list of accredited programs and specializations is available here. Established in 1988, ACBSP is the only organization offering specialized business accreditation for all degree levels, from associate to baccalaureate to doctoral degree programs.

Capella’s BS in IT program is accredited by the Computing Accreditation Commission of ABET, http://www.abet.org. ABET accreditation is an important indicator of Capella’s dedication to educational quality and the goal of preparing graduates for entry or advancement in the IT profession.
THE MOST DIRECT PATH TO YOUR GOALS

Capella’s data and analytics programs are focused on the skills and knowledge you need to succeed, and are designed to put you on a direct path to your goals.

In addition, our data and analytics courses are focused on real-world applications to ensure you’ll gain skills and knowledge you can immediately use in your career.

FlexPath, Capella’s self-paced learning format, is available for select programs* and lets you work at your own pace and use the knowledge you’ve gained in your profession to move quickly through familiar subjects—saving you time and money.

*FlexPath is currently available for MBA—Business Intelligence and Certificate—Business Intelligence programs.
RELEVANT CURRICULUM

Capella’s data and analytics curriculum was designed by industry experts to:

GAIN ANALYTICS KNOWLEDGE
Help you gain deep analytic skills and knowledge along with essential business acumen and team-building capabilities to meet employer needs and expectations.

PREPARE FOR THE WORKPLACE
Prepare you to work with, understand, and apply data to create solutions that enhance organizations’ effectiveness.

STRENGTHEN SKILLS
Strengthen your collaboration, communication, presentation, and negotiation skills.
HANDS-ON LEARNING

MS in Analytics students take part in a virtual internship at Vila Health™.

Developed in conjunction with SAS, this exclusive interactive internship is designed to develop both your analytic and collaborative skills by addressing real-life business situations. Through the interactive simulation, you and your teammates have the unique opportunity to work with Vila Health, a health care provider struggling with analysis of their extensive, complex health care data. You will investigate complex data sets, determine the proper analytic tools to use, and present your findings to leaders in a succinct, powerful visualization, all while building vital team skills sought by today’s employers.

Capella’s cutting-edge virtual internship helps you to develop the skills to be a strategic partner, a knowledgeable data analyst, and a dynamic leader.

TRY A FREE DEMO
Capella offers a variety of ways to make your degree even more affordable.

**EMPLOYER DISCOUNTS AND TUITION REIMBURSEMENT**

Tuition discounts from Capella-affiliated employers and colleges can make your degree more affordable, saving you thousands. Additionally, many employers offer tuition reimbursement to their employees — even those without a formal program. Check with your HR department or manager to see if you are eligible.

**COMBINED DEGREE OPTIONS**

Enroll in a combined bachelor’s/master’s degree option to take a set of shared master’s-level courses that will be applied to the requirements for both degrees — so you can finish both degrees in less time. Available options include:

- **BS in IT Data Analytics minor** combined with the MS in Information Systems and Technology Management program
- **BS in IT Data Management minor** combined with the MS in Information Systems and Technology Management program
- **BS in Business Intelligence minor** combined with the Master’s in Business Administration (MBA) program

**MILITARY DISCOUNT**

Capella offers a discount of 10 to 15 percent to members of the military.
Affordability

Capella offers a variety of ways to make your degree even more affordable.

Scholarships
Capella offers several scholarship opportunities for new students to save thousands on your degree. And the best part: they never need to be paid back.

Credit for Prior Learning
To recognize what you’ve previously accomplished, Capella lets you earn credit from prior learning and knowledge gained from professional certifications. In addition, you can reduce the time and cost of finishing your degree by maximizing your transfer credits. (Not available for doctorate programs.)

Save Up to $10,000 with Sophia
With Sophia Pathways for College Credit, save up to $10,000 and complete your bachelor’s degree sooner by taking Capella and Sophia courses at the same time.
RESOURCES

CAPELLA RESOURCES

BS, Data Analytics Minor
MS, Analytics
BS, Data Management Minor
BS, Business Intelligence Minor
MBA, Business Intelligence
DBA, Business Intelligence
Graduate Certificate in Business Intelligence

Demo the Vila Health® virtual lab environment
Calculate your costs and graduation date
Online learning at Capella
Scholarships for new students
Try a Capella mini course
Check out FlexPath
Learn more about Capella

INDUSTRY RESOURCES

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Cloudera
Hadoop
Teradata

CONTACT US:
1.888.227.9896
CAPELLA.EDU
EMAIL

See graduation rates, median student debt, and other information at www.capellaresults.com/outcomes.asp

Accreditation: Capella University is accredited by the Higher Learning Commission.

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