A MAJOR DECISION:
DATA SCIENCE

Should you study data science in college? Find out if this emerging area of study is up your alley.
### TABLE OF CONTENTS

3  |  Introduction  
4  |  Imagine your future  
6  |  What does data science mean?  
7  |  What’s the big deal?  
8  |  The kinds of courses you’ll take  
9  |  The payoff  
10 |  About Siena College

*Harvard Business Review called data scientist the “sexiest job of the 21st century.”*
INTRODUCTION

It’s the million-dollar question every college-bound high schooler is asked at least once: What do you want to do when you grow up?

Whether you know or not, it’s not easy to answer! That’s because exciting new careers emerge every day and new majors are created to lead the way.

Like, for instance, data science.

You’re reading this guide because it’s a term you may or may not have heard but want to know more about it—and that’s smart. The desperate need for data science is popping up in all industries, and to be completely honest: it’s a fascinating field of study and a lucrative path to pursue.

What does it mean, though? What would you learn as a data science major, and what would you do day-to-day in your future job? Read on for these answers and more.
Before getting into the specifics of what data science is, take a minute and decide if any of this sounds interesting. If it does, you might love majoring in data science. If you’re on the fence but you’re into math, solving mysteries and coming up with solutions, keep going; the ways in which data science can be used are vast.
Imagine Yourself Using Data Science To...

- Analyze biological samples from over 1,000 cancer patients to help your company develop a new drug that allows cancer cells to be removed from a person’s body naturally.  
  **READ MORE:** [7 Ways Data Science Is Reshaping Healthcare](https://www.altexsoft.com/blog/7-ways-data-science-reshaping-healthcare) (AltexSoft)

- Make assessments about the risk associated with lending someone money for bail, including the risk that a defendant will violate their terms of release.  
  **READ MORE:** [10 Interesting Ways to Use Data Science](https://www.domino.com/news/10-interesting-ways-to-use-data-science.html) (Domino)

- Figure out why a certain audience always visits your website, but rarely buys the product or service your company offers.  
  **READ MORE:** [How Airbnb Uses Data Science to Improve Their Product and Marketing](https://www.kissmetrics.com/blog/airbnb-data-science/) (Kissmetrics Blog)

- Track, prevent and detect injuries in athletes through wearable technology, and using deviations in data to indicate other causes of poor or altered performance to coaches and trainers.  
  **READ MORE:** [4 Ways Sports Business Intelligence Is Changing the Game](https://www.sisense.com/blog/ways-sports-business-intelligence-changing-game) (Sisense)

- Give yogis feedback on their posture and a score for their practice through yoga mats embedded with sensors.  
  **READ MORE:** [How Is Big Data Used In Practice? 10 Use Cases Everyone Must Read](https://www.bernardmarr.com/2014/03/19/how-big-data-used-practice-10-use-cases-everyone-must-read/) (Bernard Marr & Co.)

- Discover that men 45-82 who skip breakfast have a higher risk of coronary heart disease.  
  **READ MORE:** [9 Bizarre and Surprising Insights from Data Science](https://www.scientificamerican.com/article/9-bizarre-and-surprising-insights-from-data-science/) (Scientific American)

- Find out the world’s most sleep-deprived city (Tokyo) or what U.S. states you’re more likely to hear “dude,” “bro,” “buddy” or “fella”.  
  **READ MORE:** [10 Surprising Big Data Insights From 2014](https://www.inc.com/magazine/2015/01/10-surprising-big-data-insights-from-2014.html) (Inc.)
WHAT DOES DATA SCIENCE MEAN?

Think of all the data that’s out there in the world. Google searches, purchase transactions, cell phone activity, Buzzfeed video views, your tweets. On average, the U.S. alone generates \textbf{2,657,700 gigabytes of Internet data} every minute. That’s a lot of data—or information for businesses to use to make smart decisions. Data science—at its most basic level—is about taking lots of data and making sense of it to solve problems.

\textbf{FROM THE WALL STREET JOURNAL:}

Data science isn’t just about being skilled with numbers. Rather, an effective data scientist also has an ability to see how particular subsets of data may be more useful than others, and what conclusions can be drawn from them.

\textbf{IN THEIR JOBS, DATA SCIENTISTS MIGHT:}

- Collect data and organize it
- Look for patterns and trends, and make observations
- Discover opportunities and solutions
- Test predictions
- Work closely with other departments, like marketing or engineering

“They’re part mathematician, part computer scientist and part trend-spotter.”– SAS
WHAT’S THE BIG DEAL?

So why is this a major you should consider? Why are people with data science skills so highly in demand? Aside from it paying well (more on that later), the skills of a data scientist—and of related roles like data analyst and data engineer—are invaluable for any company, any industry.

BUSINESSES NEED HELP FINDING THE RIGHT DATA
The sheer amount of data is so large that being able to mine the right data for a business is a skill itself. Knowing that, you could save your future employer time, resources and money.

DATA CAN SERIOUSLY AFFECT THE FUTURE
Data could be used to make decisions on advertising, hiring, marketing, pricing, product development and so much more. It could change the way a company operates, how a not-for-profit stands the test of time or how the world thinks about big issues like hunger or poverty. The applications are endless.

EMPLOYERS KNOW THE VALUE THAT LIES WITHIN
Nearly 70 percent of CFOs surveyed rank data-based insights as the top influence on strategic business decisions. It’s no wonder why IBM predicts that by 2020, the number of jobs for all U.S. data professionals will increase to 2,720,000.

“By the time entering college students graduate, even more companies will have caught on to the value of data and data science. There will always be more jobs. Someone with the knowledge to be able to store data, retrieve it, understand it and make decisions based on it—that’s what data-driven employers look for.”

- Michael Tanksi, Siena College Class of 2012
  Co-Founder, Dumbstruck, an artificial intelligence platform
THE KINDS OF COURSES YOU’LL TAKE

To acquire the sought-after skills of a data scientist, majoring in data science in college is one of the best things you can do—rather than try to teach yourself after graduation. You’ll emerge from school ready to tackle jobs and challenges that don’t even exist yet. So what will you learn? These are a few courses Siena College offers its data science majors and minors.

INTRO TO EXPLORATORY DATA ANALYSIS AND VISUALIZATION

In this course, you’ll learn what exploratory data science (EDA) means and solve real world data problems. No previous programming experience necessary!

METHODS FOR DECISION MAKING

Calc, basic probability and decision theory with a focus on business applications come together in this introductory course.

DATA STRUCTURES

Students in this course continue to develop their programming skills using a variety of techniques.

MACHINE LEARNING

A subfield of artificial intelligence, machine learning involves hands-on activities in areas like robotics, computer vision, medical informations and beyond.

PUBLIC OPINION

This course covers public opinion polls and survey techniques, as well as the impact of public opinion on policy makers.
The Payoff

Pursuing data science as a major will set you up for a career path that can take multiple twists and turns. Your new skills can be applied in a host of emerging industries and roles, from sales and marketing to hospitals, manufacturers, and beyond. You could potentially parlay your experience from one field to another, keeping your career fresh and exciting, or choosing the one field that you’re passionate about and rising up within it. Plus, you’ll likely earn a great salary.

According to Glassdoor, the national average salary for a data scientist is $120,931 in the United States.

Related Role: Senior Data Scientist
$141,000

Related Role: Data Analyst
$65,000

Related Role: Data Scientist Intern
$89,000

Related Role: Quantitative Analyst
$94,000

Source: www.glassdoor.com
ABOUT SIENA COLLEGE

We offer three programs relevant to this guide: a B.S. in data science, an advanced graduate certificate in data analytics, and a minor in data science.

Our small classes are 100% faculty-taught so that our professors can really get to know you.

Between our 31 majors and 80+ minors, certificates and concentrations, you can truly customize your experience here.

Our 20 centers and institutes, like the Stack Center for Innovation and Entrepreneurship or the Center for Undergraduate Research and Creative Activity, take hands-on learning to the next level.

Saints intern at impressive companies (Google, NASA, Target, to name a few) and land jobs at places like ESPN, Goldman Sachs and the New York State Senate.

BLOG POSTS YOU MAY BE INTERESTED IN:

- Everything you need to know about Siena’s new data science major
- Customize your major with any of these concentrations
- Where Siena students work across the U.S.
- Quiz: What type of colleges should I consider?

We offer an MBA program with a track in business analytics. It’s the perfect next step after you earn your bachelor’s in data science!

Saints make $500,000 more than SUNY alumni in lifetime earnings.
WHERE TO GO FOR MORE INFORMATION

Thank you for reading our guide on data science. If you have any questions about this particular major or others—or just want to learn more about Siena College—we’re happy to help. Good luck on your college search!

REQUEST MORE INFORMATION

CALL US AT 518-783-2423

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