

Annie Nelson

**How to
Become a
Data
Analyst**



My Low-Cost, No Code Roadmap
for Breaking into Tech

WILEY

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Data Analyst**

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To Chris,

*For doing all the cooking, cleaning, housework, and anything else
that needed to be done so I could focus on changing my life*

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Preface

I've never seen myself as particularly "techy" or "good at math." To be honest, I never enjoyed math, and if you'd asked me even a few years ago if I had any interest in learning how to code, I would've laughed at you. So how in the world did I go from that to writing this book about becoming a data analyst? Perhaps I should start with some context, because I find that the more I connect with others in the data community, the more I see my story reflected in theirs.

In the United States the phrase "What do you want to be when you grow up?" is usually synonymous with both "What do you want your identity to be?" and "What career do you want to have?" I grew up thinking that what I did for work had to be my entire personality. I was never quite sure what I wanted to "be." I was a natural caretaker and wanted to be seen as empathetic, and I've always loved spending time with kids. I also knew that I love spending time outdoors and going on adventures regularly.

This led to the natural conclusion that I should become a teacher or maybe a wilderness therapist. Well, after some time dabbling in teaching I realized that it was not the path for me. So after discovering the joys of nature-based occupational therapy with children, I decided I knew what I wanted to "be," and I signed up for my master's degree a few months later.

Fast-forward a couple of years (and many thousands of dollars later), and I was more burnt out than I'd ever been. Unfortunately, a perfect storm of circumstances had rocked my (our) world(s) in the last few years. In my first year of graduate school (1) we entered a global pandemic (hello, 2020!),

(2) I developed a mysterious autoimmune disorder in my brain, and (3) I was juggling full-time graduate school and being elected president of the student government of my program.

Unfortunately, I didn't have the best graduate school experience. I felt that I was often being asked to ingest and regurgitate information seemingly at the instructor's discretion. I'm someone who genuinely enjoys learning, and being forced to perform under high stakes without the joy of being allowed to truly *learn* was a hard pill to swallow. I poured hours of time (and many tears) into trying to advocate for myself and my peers, only to get chastised for being "unprofessional."

After two years of poor physical health (migraines, brain fog, and overwhelming fatigue) and poor mental health (due to graduate school), I knew that something in my life needed to change. The year 2021 in particular felt like it was grinding me down so hard that all that was left was an emotionless pile of dust. So, in the last semester of school I quit my job and moved out of my apartment to go live with my parents, to try to recover some of the spark I used to have for life.

Why am I telling you all this? None of the individual brush strokes of my story are likely to be relevant to you. But, if we back up a bit and look at the whole picture I've painted, I know it suddenly becomes a familiar picture for many people out there. What's the number one thing people tell me when I ask why they decided to take the leap and switch careers into data? "I was burnt out, unhappy, and wondering if there could be more than the life I was living before."

As I started to recover from burnout, the first thing that returned was my interest in learning. The next thing to come was the acute awareness that I still needed to make it through another nine months before I could get a job as an occupational therapist and start paying off my tens of thousands of dollars in student loans. At first, besides the time I was spending on internships as a part of the end of my Master's Degree, I was reading five books a week and delivering for Instacart. At around the same time, I started to see all these TikToks from people who worked in tech talking about their remote jobs, how flexible they were, and how well they paid.

The idea of working remotely, having autonomy over your schedule, and being paid well enough to be comfortable was fascinating to me, but it

felt far out of reach. I wrote it off initially, thinking I wasn't smart enough. "I'm just not a math person" and "I could never enjoy coding" and even "I like having a job where I'm on my feet often" were all mental statements I made to myself.

Sometime about mid-January, I decided to look up "tech jobs you can do without learning to code." To my surprise, it appeared there were many paths into the tech industry, not all of them requiring a computer science degree or any coding. I spent a few hours going down the rabbit hole of different options and finally landed on data analytics. What I gathered about data analytics is that it involves working with data in programs like Microsoft Excel. It can be done remotely or in person. And, crucially, it seemed like it had a pretty low barrier to entry.

I put all those pieces together and decided, "Maybe I could learn data analytics well enough that people would pay me to organize and analyze their spreadsheets as a side hustle." It had all the markings of a perfect plan—I could do it on my own time, make more than minimum wage, and do it without having to drive anywhere. I'd found this Google Certificates course in Data Analytics that seemed to have the roadmap laid out for me to prepare for a job or side gig.

I was lucky enough at that point to have already prepared for the time I would be in various occupational therapy clinics full-time to complete the requirements for my degree (kind of like student teaching), unable to have a steady source of income. I had some free time to spend learning, as long as it was cheap. Looking back, what was most exciting to me about signing up for and beginning that Google Certificates course was the ability to finally get to *learn* again.

I'll continue sharing the story of what happened next in the chapters to come, but the short version is that the random decision to try analyzing spreadsheets as a side hustle became not only the catalyst for eventually deciding to switch careers, but also one of the single most influential and pivotal moments in my life so far. As you can imagine, you don't get to the point of writing a book about how to become a data analyst without it being a life-changing event.

I'm so glad that I put a very small amount of thought into the idea of trying out data analytics. If I'd thought about it and tried picturing myself as a data analyst among other data analysts, I never would've started.

If you'd asked me a year and a half ago what your average "data analyst" looks like, I would've answered something like this:

- Male
- Good at math/statistics
- Into computers
- Has a computer science or math degree

This is far beyond the scope of this book and I am not qualified to talk about it, but as I've discussed this topic with others in the industry, something that often comes up is that most people perceive tech to be dominated by cis straight white men. If I had to choose from a multiple-choice list who would be the best fit for "data analyst" and "cis white male" was one of the options, I would've chosen that.

The point I'm making here is this: I *definitely* did not see myself represented in the tech world. I can't imagine that I would've decided to seek a new career that I knew nothing about, where I wouldn't fit in with anyone, while not having any idea if I would ever be good at it—even if it promised good pay and remote work.

That's part of the reason I'm writing this book: I hope readers can see themselves represented in my story. I am neurodivergent, I have an autoimmune disorder. I am a (white) woman. When I was writing this preface and explaining how I hated calculus in high school, I realized two days later that it was *algebra*. I never even *took* calculus in high school (I did take pre-calc). I love spending my time with children. Three years ago was the first time I ever had a full-time job during the summer, because prior to that I would take my summers off so I could spend afternoons swimming, camping, rock climbing, and generally *not working or sitting in front of a computer*.

I'm not what someone would consider the "ideal candidate" for a data analyst role on paper. But you know what? In just six months I taught myself data analytics for less than \$100 and landed a great job. I have loved being a data analyst, and I don't get the "Sunday Scaries" anymore, where I spend most of my Sunday dreading going back to work on Monday. I have also never gotten a less-than-glowing performance review from my manager(s) since I changed careers, and others around me tell me that I am learning fast and doing exceptionally well for someone so new to the industry.

So far I've talked about data analytics from the perspective of what it looks like to be an entry-level data analyst. But how about what comes next? If you launch a data career, what can you expect your roadmap to look like in the future?

The beautiful thing about working in tech in general, and analytics is no exception, is that it is always growing and evolving. Earlier I mentioned how curiosity and a love of learning are a valuable part of the data analyst mindset. There are so many ways you can make a career in data.

The only thing I can say for sure is that you can't get into data analytics and expect that it's always going to stay the same. As you move up the chain of data analytics, the expectations for you in your role will evolve. Additionally, the tools themselves will always be changing and evolving. I heard a story recently about someone who got into a senior data analyst role just by getting really good at Excel. When they decided to try to get another role, they couldn't. They refused to learn SQL, and when they tried to find a senior data analyst role that didn't require any SQL (or Python!), they couldn't find one.

Don't worry if you don't know what SQL and Python are yet; they're tools data analysts use, and you'll learn about them in this book.

Since every industry needs to have data analyzed, and data is such a fast-growing field, the possibilities are almost endless. Here are some options and job titles for the future career path you could take once you get into data:

- Data quality analyst
- Senior data analyst
- Senior research analyst
- Senior financial analyst
- Analytics manager
- Director of analytics
- Data scientist
- Data engineer
- Analytics engineer
- Chief data officer
- Data project manager
- Project manager
- Product manager

- Data governance specialist
- Data quality engineer
- Data steward
- Data evangelist
- Head of data analytics

When I decided to get into data analytics, I did it because of the seemingly infinite possibility for growth. I thought that I'd spend a few years as a data analyst, and then look into transitioning into a data scientist role. Now that I have gotten into not only data analytics but also consulting, I've realized I'm very interested in data strategy and quality. I enjoy thinking about the big picture and understanding how each piece of the data puzzle fits with the rest.

In the future I see myself potentially going in the direction of data/analytics engineering, data strategy, or even head of analytics or chief data officer. Who knows where my career will go—not me! It does seem to be pretty common that people think data analytics will be their stepping stone to data science, and then they discover some other path along the way that interests them. I don't want to become a data scientist, but it is a popular transition.

One big benefit of data analytics, at least in 2023, is that it has a fairly low barrier to entry. I often see people who had no prior tech or data experience getting their first data jobs. It happened to me! Many of the other roles I listed require previous experience. Fortunately, becoming a data analyst could be the springboard or prior experience you need to access any one of them.

Even though the barrier to entry is low, it still takes work! In this book, I walk you through everything I needed to know to make the leap from my old career into data analytics. This will prepare you to do the work of becoming a data analyst, without all the uncertainty of not knowing where to start or what to focus on.

Introduction

If you've read this far, you're probably interested in jumping into data analytics. Congratulations! It tops the charts as one of the best things I've ever done for myself. In this book I will lay out my story, and along the way I'll relate that to how you, too, can get into data analytics.

In this book, I'll discuss how I got my first data job six months after I began learning this new career, and it cost me less than \$100. I've seen hundreds of people go down this same route since I got my job and experience success as well. I've compared my story and struggles with those of many others and identified the things that we all have in common.

There are many different paths to getting a role as a data analyst, and no two journeys will look the same. At the end of the day, job searching often comes down to luck and timing. I'm not going to tell you exactly what to do, and I can't guarantee that at the end of it all you'll get a job. I can't guarantee you a certain salary, or that it will take you a certain length of time.

What I can tell you, though, is what worked for me. I can tell you what felt hard for me and what things I would do differently if I were to do it all over again. I can tell you the things I've seen people do who followed the same path to successfully land a job in data analytics.

How Do I Know If Data Is a Good Fit for Me?

One of the questions I get asked the most often is "Can I get into data analytics if my only experience is in _____?" The answer is yes. Data analytics

is a unique career because it has a fairly low barrier to entry. Every industry needs data analysts! I may not be the best “financial data analyst,” but I’m working on a project right now with research/survey data, and my research background has given me a leg up. So, toss aside any perceptions that you may have about “who” makes the “perfect” data analyst. If it seems interesting to you, then you might be a good fit!

Who This Is Book For

This book is for you if you want to take what I call the “DIY” approach to getting into data analytics. You are happy to teach yourself and you don’t need an instructor to tell you what to do or teach you hands-on. If you take this approach, it will likely be the cheapest; many people, including myself, have done it for less than \$100. However, do not pick this approach just because it is the cheapest.

My “DIY” approach is good for people who already have good critical thinking skills—people who already know how to do research on the Internet. (You’d be amazed at the number of questions I get in my inbox like “What is SQL?” You should be able to Google things like that yourself and not have to ask someone else.) This approach is good for the career changers—people who already have professional experience in another field and just need to learn how to translate that into data analytics. This can be just about anything, from waitressing, to teaching, to occupational therapy (I’ve done all three).

This book will be helpful if you like to solve problems on your own. I’ll provide a general roadmap and some sample projects. However, I’ll focus on sharing my experiences with you—and it will be up to you to take that information and apply it to your own situation.

I find that the type of people who are curious, passionate, and good at critical thinking tend to have the easiest time making their way into data analytics and enjoy it the most when they get there. If you’d prefer to have someone to walk you through every step of the process—teach you the technical skills, provide you with résumé feedback, stage mock interviews, help you with your LinkedIn profile—know that this book will not do that.

This book walks you through my journey to become a data analyst, and I’ll offer advice about selecting courses and learning data skills. I’ll share with you my real insights of what it felt like to run a successful query for

the first time, as well as my doubts about my abilities when I reached challenging subjects.

I'll talk about building a portfolio, which is the key to any successful transition into data analytics. Building a portfolio was exciting but intimidating for me when I was learning, and so I'm taking the guesswork out for you and will break it down so portfolio building is approachable—and hopefully fun!

I'll also discuss all things job search. I'll share my honest experience of job searching, being rejected, and considering giving up on data analytics. You'll see how I pivoted my strategy and how I landed my first job in data. I'll also share practical tips about networking, résumés, and LinkedIn. There's even a guide for using artificial intelligence (AI) to help you succeed at every step of the job search and interview process.

If you enjoy learning independently and are willing to put in the work to become a data analyst, then this book will be just the guide for you. My goal is to take all the guesswork out of the equation so that you can set yourself up with a roadmap and avoid all the mistakes I made along the way.

Changing careers into data analytics requires persistence and determination—but it's worth it in the end. At least, it was for me!

PART

I

The Fun Part

Chapter 1: Is Data Analytics Right for Me?

Chapter 2: Understanding the Paths into Data

Chapter 3: Designing Your Data Analyst Roadmap

Chapter 4: My Experience with Data Analytics Courses

1

Is Data Analytics Right for Me?

What's Here

- What does a data analyst actually do every day?
- What makes a good data analyst?
- What tools should I learn?
- Which entry-level tech job is right for me?

What does it even mean to be a data analyst? Before you can dive into data, you probably have a lot of questions about what it would really look like to be a data analyst. If you are in a completely different career (like I was before I transitioned into data), you may want to know about the day-to-day and what would make you a good analyst.

Once you understand what it looks like to be a data analyst, you can make a more informed decision about whether it will be the right fit for you. At the start of my journey, I was unsure if I would enjoy the work of data analytics, but I knew that the idea of remote, flexible work was appealing. Fortunately, I ended up loving everything about being a data analyst once I dove in. It turned out it is the right fit for me!

Since data analytics is a broad and diverse career path, there are many different options for what this career path can look like. In this chapter

I will share with you the basics of what it's like to be an entry-level data analyst, as well as career progression options.

What Does a Data Analyst Do Every Day?

Later in this book, I will talk about what my day-to-day looks like, and share some stories from other data analysts I know whose jobs are vastly different from mine. For now, let's just talk generally about what data analysts do day to day.

Something that I love about the field of data analytics is that it is incredibly diverse. I don't know two people in data who do the same thing. The thing is, unlike other career paths, there is no one "area" that data analytics belongs to. If you're a nurse then it's fairly predictable that you are going to be working with the human body. Real estate agents pretty predictably sell houses and properties. But every industry out there has data, doesn't it?

That means if you become a data analyst you might need to know about

- Banking
- Healthcare
- Stocks
- Insurance
- Auctions
- Manufacturing
- Research
- Sales
- Marketing
- Human resources (HR)
- Construction

The list goes on and on. Although there is a core set of tools and skills that most data analysts will need, the day-to-day of the job is going to be heavily influenced by the demands and culture of the industry and company that the role exists within.

I have found that generally there are two primary divisions to "data analytics," but almost all roles mix and match from both. Data analytics tends to represent the technical aspects of the job—which means utilizing

things like Microsoft Excel and SQL to analyze data and draw conclusions. However, almost all analyst roles also incorporate “business analytics,” which involves taking what you learn from your technical data explorations and applying it to the real problems and challenges facing the business.

A common phrase in the data sphere is “heads-down work.” That refers to when you are doing a deep dive into the data/project. Heads-down work tends to be pure analysis/building, so it doesn’t involve emails, meetings, or presentations. A role that leans more heavily toward the “data” side of analytics tends to have more heads-down work. When there are meetings, they are often an internal review of the work that has been done and planning for future work.

Roles that lean more toward the “business” side of analytics, on the other hand, will involve a lot more face-to-face time—internally and externally. This might mean spending some time doing heads-down analyses but then presenting that information to internal executives or external stakeholders or people this analysis affects. It may also involve observing and taking part in processes within a business—I find this to be especially common in small businesses/start-ups that are still defining how they will collect and organize their data.

As I have gotten deeper into the data space, I have realized that often-times the most valuable part of an entire data project is the meetings that happen at the beginning—before anyone has even looked at any of the data. These meetings are more than just requirement-gathering sessions; it is the time when knowing how to ask the *right* questions will determine not only how successful a project is, but also how long it takes. As a data analyst, it’s your job to have a clear understanding of what the business problem is that you are trying to solve (using data), and how what you are doing is going to directly impact the mission/bottom line of the business.

As a note, I’m not sure why, but I don’t know if I have ever actually heard someone use the counterpart “heads-up work.” I think I used it in one of my interviews and now I look back and wonder if they thought it was a weird thing for me to say!

Although I think it is possible to get a role that is strictly a “business analyst” role where you hardly even touch any of the technical tools, or conversely to get a purely “data analyst” role where you do not have to go to any meetings or gather any business requirements, that is incredibly rare.