

Task 2: Careers and Career Goals

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A: CAREER PLAN

My career plan after graduation is to become a data scientist. Because those roles generally require more experience, I will also be applying to become a data analyst and work until I am able to get a job as a data scientist, which is my goal. If I have trouble securing a job as a data analyst, I would work as an intern anywhere data-related that I could. I could also get a job in the field of mathematics since that is what I got my bachelor's degree in. As such, I have included some mathematics related jobs below. However, My career goal is to rise through the ranks to eventually secure a leadership position as a data scientist. I would love to work for a tech company creating data visualizations.

A1: ROLES OR CAREERS IN DATA ANALYTICS

When creating my career plan, I considered the following three professions:

1. **Data Analyst** - A data analyst's job is to collect, analyze, and interpret datasets. Data analysts work in a myriad of industries, such as tech, health care, business, insurance, and many more. Nearly every company uses data to its advantage and they use data analysts to interpret that data to make predictions and make data-driven decisions. Most data analysts will also perform data mining, cleaning, and preparation. A data analyst's job is to acquire data and improve the company, helping a company get closer to completing goals and achieving its mission.
2. **Data Scientist** - A data scientist's job is to use statistical models, programming, and machine learning to collect, organize, analyze, and interpret complicated data. They may work with massive amounts of data and use programming and models to find patterns and trends. Companies hire data scientists to perform analysis, predict behavior, and make business decisions that are supported by data. They often perform experiments and create data visualizations for company leaders and stakeholders.
3. **Data Engineer** - A data engineer's job is to create and maintain systems for creating, storing, and maintaining data. They may create ETL data pipelines and manage data warehouses and data lakes. They may deal with structured and unstructured data and are often more focused on securing the quality and security of the data rather than analyzing it. They also design data architecture and often work with cloud computing.

A1a: DIFFERENCES BETWEEN ROLES OR CAREERS

Although the three careers all involve data, they are all quite different. Of the three, data analysts and data scientists have the most in common, as they both acquire, clean, and interpret data. They both help businesses make data-driven decisions through modeling and creating data visualizations. However, data scientists are usually more innovative and perform more experiments. In short, they are more likely to create, as opposed to just analyzing. Data

scientists are also more likely to do advanced modeling, use machine learning, and use more advanced mathematics and statistical analysis.

Data Engineering differs greatly from the other two professions and is much more focused on building and maintaining infrastructure, rather than analyzing the data and building models. Generally, data scientists and analysts do not develop ETL pipelines or manage data lakes and data warehouses, unlike data engineers.

A2: HOW ROLES SUPPORT THE DATA ANALYTICS LIFE CYCLE

The data analytics life cycle includes the following seven steps: business understanding, data acquisition, data cleaning, data exploration, data modeling, data mining/machine learning, and reporting and visualization. Here is how the three jobs listed above support the life cycle:

1. **Data Analyst** - A data analyst's job is likely to perform every aspect of the data lifecycle. Data analysts need to understand the needs of the business, acquire data, clean the data, model the data, mine the data, report findings, and create visualizations. Because the lifecycle of data tells the journey of how data is created and how it is used, naturally, data analysts perform essentially every aspect of the lifecycle.
2. **Data Scientist** - Similar to a data analyst, a data scientist is also likely to perform every aspect of the data lifecycle. Data scientists need to understand the needs of the business, acquire data, clean the data, model the data, mine the data, report findings, and create visualizations. However, data scientists are more likely to use machine learning, use advanced mathematical analysis, and perform experimentation with datasets. They create data from experiments more often than a data analyst would. They are also more likely to get more analysis out of a dataset than an analyst would.
3. **Data Engineer** - On the other hand, data engineers less commonly analyze, clean, and model data. They are much more focused on infrastructure. However, they are still a key component of supporting the data life cycle because they ensure the data gets stored properly, is protected, and is secure. Although data engineers include developing pipelines and managing stored data, they still help preserve data for future use.

B: COMPARISON OF DATA ANALYTICS DISCIPLINES

The ProjectPro link supplied in the course materials provides an article that compares data science with many different analytic disciplines. I chose these three disciplines to highlight:

1. Data Science vs Data Mining

Although data scientists use data mining as part of the data analytics lifecycle, data mining is just one part of what data scientists do. Data mining is focused on collecting data and analyzing it to find patterns and trends. According to ProjectPro (2024), "The main goal is to design algorithms that extract insights from large unstructured data sets

and validate the findings by applying identified patterns to novel subsets of data.” At the end of the day, data mining is used to predict future trends and assist with machine learning. According to ProjectPro, data mining is just the first step of data science.

2. Data Science vs Statistics

Although data scientists use statistics, the two fields are very different. Although most statisticians likely use computer models, statistics is a branch of mathematics that makes data analysis possible. The formulas for distributions, variations, and models can be complex, but generally, statistics is not done on massive data sets. That is where data scientists and data analysts come in. Data scientists wield statistics to analyze massive amounts of data in a way that was not possible before the invention of modern computing.

3. Data Science vs Artificial Intelligence

Artificial intelligence is possibly the hottest issue in technology right now. According to ProjectPro (2024), Artificial intelligence “spans various knowledge domains like robotics, cognitive science, natural language processing, human-computer interaction, pattern recognition, etc.” Developing Artificial Intelligence often uses machine learning models, which are tools that data scientists use all the time. Using machine learning, data scientists can teach machines to improve from data and experience without being explicitly programmed, causing them to become more accurate over time.

B1: CAREER TYPES and B2: ACADEMIC SKILL AND NEEDS

Because I have a mathematics degree, I decided to check government data on a handful of mathematics-related careers. I researched the roles of data scientist, actuary, and operations research analysts on the Bureau of Labor and Statistics government data website (2024). Here is a summary of academic skills and needs for these careers:

1. Actuary

- Typical Entry-Level Education: Bachelor’s degree
- Common fields of degree include: mathematics, actuarial science, or statistics
- Work Experience in a Related Occupation: none
- Number of Jobs, 2023: 30,200
- Job Outlook, 2023-33: 22% (Much faster than average)

2. Data Scientist

- Typical Entry-Level Education: Bachelor’s degree, but some jobs require a master’s or doctoral degree
- Common fields of degree include: mathematics, statistics, computer science, business, and engineering
- Work Experience in a Related Occupation: None
- Number of Jobs, 2023: 202,900
- Job Outlook, 2023-33: 36% (Much faster than average)

3. Operations Research Analyst

- Typical Entry-Level Education: Bachelor's degree
- Common fields of degree include: a degree in operations research or a related field, such as applied mathematics
- Work Experience in a Related Occupation: none
- Number of Jobs, 2023: 123,300
- Job Outlook, 2023-33: 23% (Much faster than average)

C: CAREER GOAL

As I stated above, my career goal is to eventually secure a leadership position as a data scientist. It may take some time working as a data analyst before I am able to rise through the ranks. Because the growth of data science and data analysis jobs looks optimistic, I am hoping I won't have any trouble securing a job in these roles. However, if I do, I can use my mathematical background to work as an actuary or operations research analyst as well, as both of those jobs also analyze data.

C1: CLIFTONSTRENGTHS REFLECTION

According to my Clifton Strengths test, my top 5 career strengths are:

1. Relator - I connect deeply with the right people to gain friends for life.
2. Achiever - I bring intensity and effort to the most important areas of my life.
3. Learner - I use my passion for learning to add value to my life and to others'.
4. Empathy - I understand others' thoughts and feelings
5. Developer - I recognize and cultivate the potential in others.

In summary, I do well achieving, learning, and connecting with others. I think my strengths highlight why I wanted to be a data analyst in the first place--I love learning new concepts, I am analytical, and I love a challenge. I also connect well with others, which will serve me well when it comes to presenting my data in the reporting and visualization portion of the data analytics life cycle. I also believe my social skills and high motivation for achievement will help me achieve my goal of becoming a leader in the workplace as a data scientist.

Sources

ProjectPro. (2014). *Data Science Compared With Different Analytics Disciplines*.

<https://www.projectpro.io/article/data-science-compared-with-different-analytics-disciplines/175>

Bureau of Labor Statistics. (2024) U.S. Department of Labor, *Occupational Outlook Handbook*, "Data Scientists."

<https://www.bls.gov/ooh/math/data-scientists.htm>

All other sources were WGU's class materials