

Data Science and the Data Scientist Toolkit



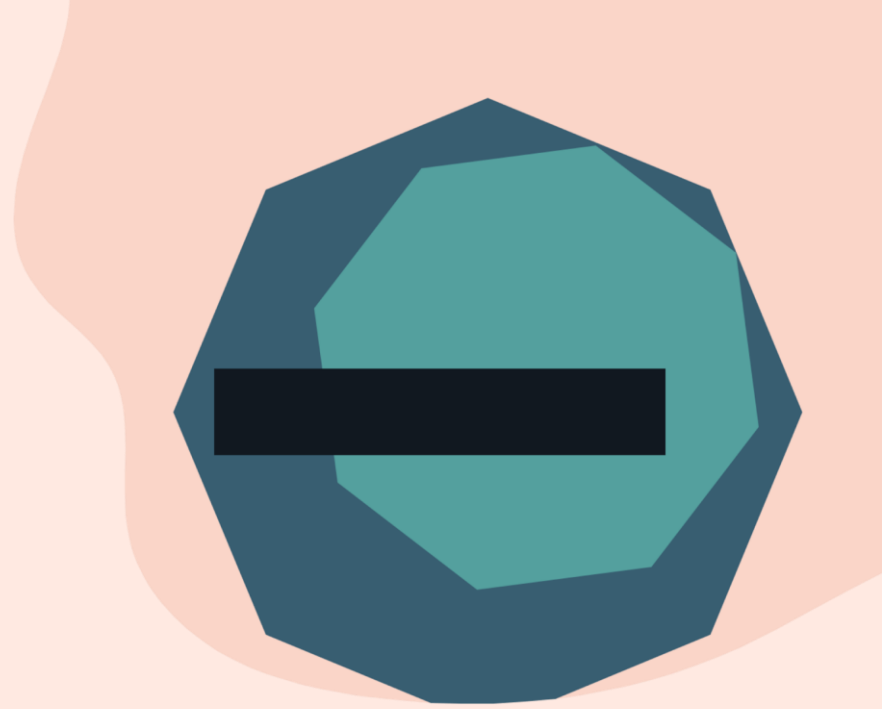
// FLATIRON SCHOOL

Agenda

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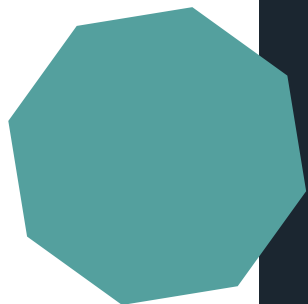
- What is Data Science?
 - Roles and Responsibilities
 - The Process
- The Data Science Toolkit (Phase 1)

**So:
What is
Data Science?**



What is Data Science?

Find out for yourself!



Prompt: Spend the next 10 minutes skimming and discussing your assigned blog post, then come back and report your findings to the rest of us.

1. [A Deep Look Into 13 Data Scientist Roles and Their Responsibilities](#)
2. [The Data Science Process](#)
3. [Most In Demand Data Science Technical Skills](#)
4. [A Learning Path to Becoming a Data Scientist](#)
5. [Compilation of Advice for New and Aspiring Data Scientists](#)

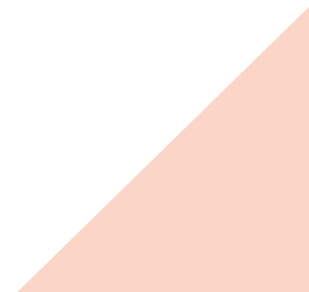



Let's Discuss!

What does a “data scientist” do?

What are the main skills you need to be a “data scientist” ?

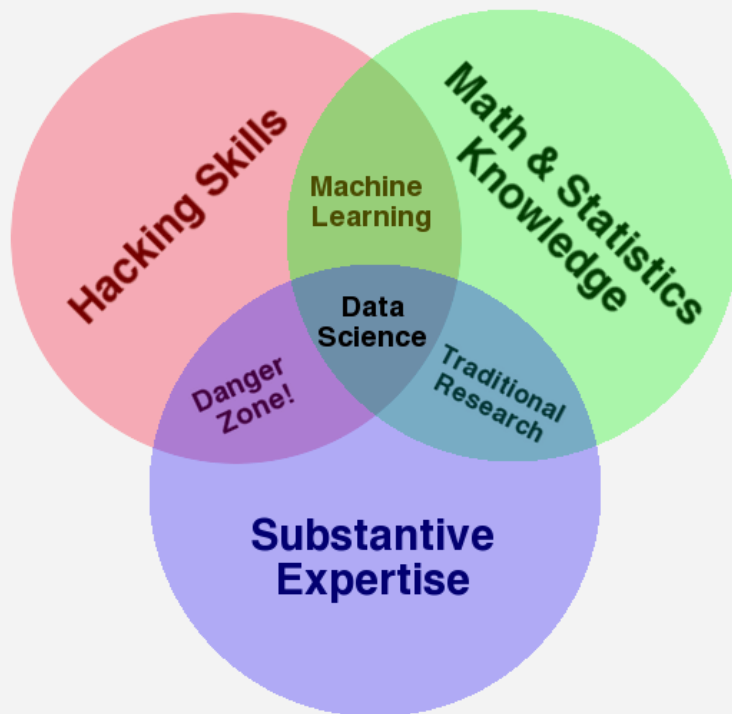
What is consistent among these posts, and what is in dispute?



The background features a dark navy blue field. On the left side, there are several overlapping geometric shapes: a dark blue square, a dark blue rectangle, and a red triangle pointing towards the center. In the bottom right corner, a red triangle points towards the center, mirroring the one on the left. The text is positioned on the right side of the image, in a white, sans-serif font.

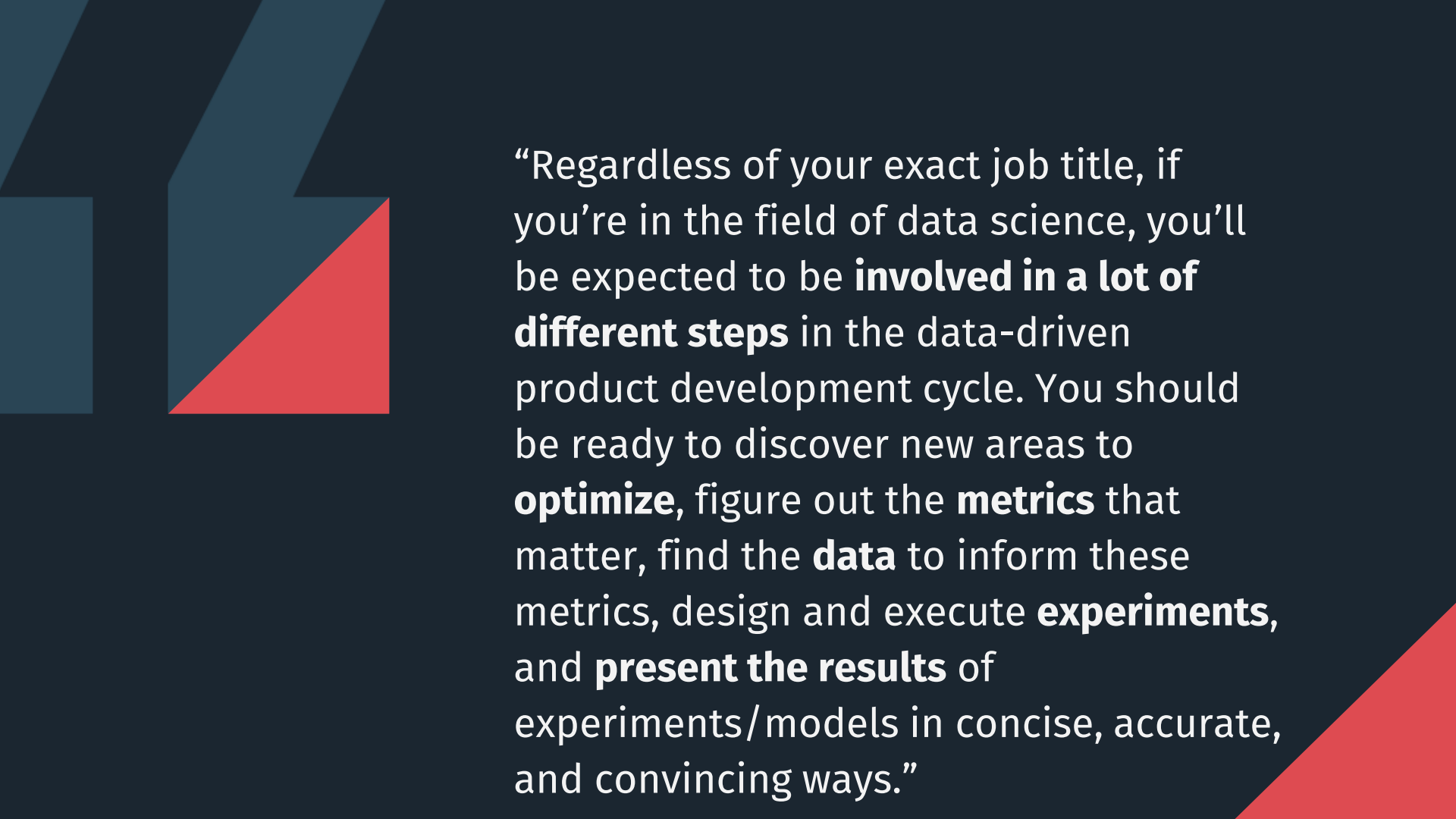
“A data scientist is a professional responsible for **collecting, analyzing and interpreting** data on various scales. The data scientist role is an **offshoot of several traditional technical roles**, including mathematician, scientist, statistician and computer professional.”

The Data Science Venn Diagram



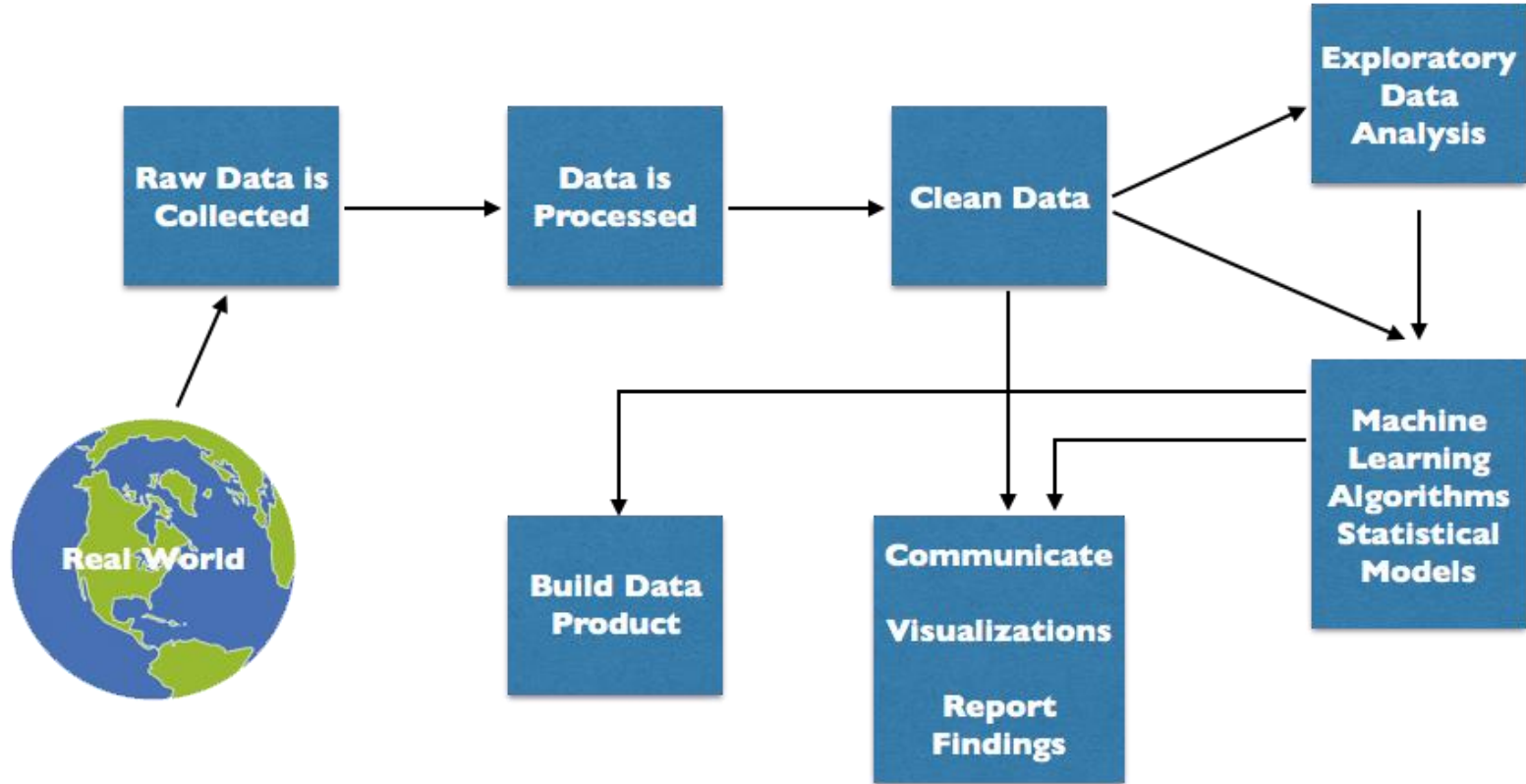
Common Roles & Responsibilities

	Data Analyst	Machine Learning Engineer	Data Engineer	Data Scientist
Programming Tools	Very important	Very important	Very important	Very important
Data Visualization and Communication	Very important	Somewhat important	Somewhat important	Very important
Data Intuition	Somewhat important	Very important	Somewhat important	Very important
Statistics	Somewhat important	Very important	Somewhat important	Very important
Data Wrangling	Not that important	Not that important	Very important	Very important
Machine Learning	Not that important	Very important	Not that important	Very important
Software Engineering	Not that important	Somewhat important	Very important	Somewhat important
Multivariable Calculus and Linear Algebra	Not that important	Very important	Not that important	Somewhat important
<div><div></div> Not that important</div> <div><div></div> Somewhat important</div> <div><div></div> Very important</div>				

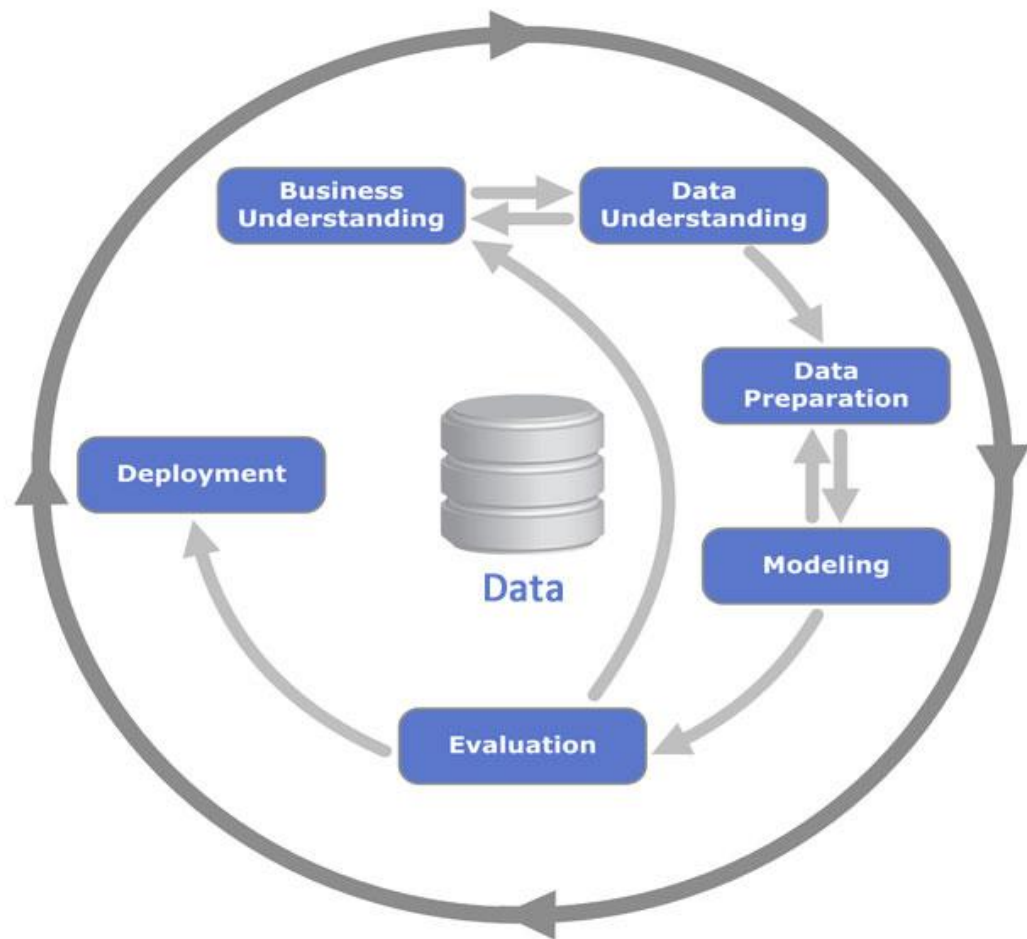
The image features a dark blue background with decorative geometric elements. In the top-left corner, there are overlapping dark blue and red shapes. In the bottom-right corner, there is a red triangle pointing towards the center. The text is white and positioned on the right side of the image.

“Regardless of your exact job title, if you’re in the field of data science, you’ll be expected to be **involved in a lot of different steps** in the data-driven product development cycle. You should be ready to discover new areas to **optimize**, figure out the **metrics** that matter, find the **data** to inform these metrics, design and execute **experiments**, and **present the results** of experiments/models in concise, accurate, and convincing ways.”

The Data Science Process



CRISP-DM Process Diagram





The Data Science Toolkit

Data Science Toolkit - Phase 1

Languages



Interfaces



Version Control



Versioning



Languages



Python

- Free, open source, versatile, powerful
- Not just for data science!
- Object-oriented (everything is an 'object')
- [The Zen of Python](#)



Structured Query Language (SQL)

- Connect to, change, and retrieve data from relational databases
- Developed in the 1970s, still going strong
- Many flavors

Interfaces



Jupyter Notebooks

- Streamlined document-centric interface for running and sharing code



IllumiDesk

- Hosts Jupyter Notebooks in the cloud



Code-Focused Text Editor

- Write text files in a code-native format
- **VS Code** is one of many that would work

Version Control



Git

- Distributed version tracking on any files
- Folder → “Repository”



GitHub

- Hosts Git repositories
- Collaborate and share code with others
- Backbone of the open source community
- Your Data Science portfolio!

Versioning



Anaconda

- Package management and deployment
- Designed with Data Science in mind
- Create and share environments



Python Package Index (PyPi)

- Database of public Python libraries
- Package installer (pip)
- Not everything is on Anaconda

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**Now:
Time to Get
Started!**