

# DATA SCIENCE

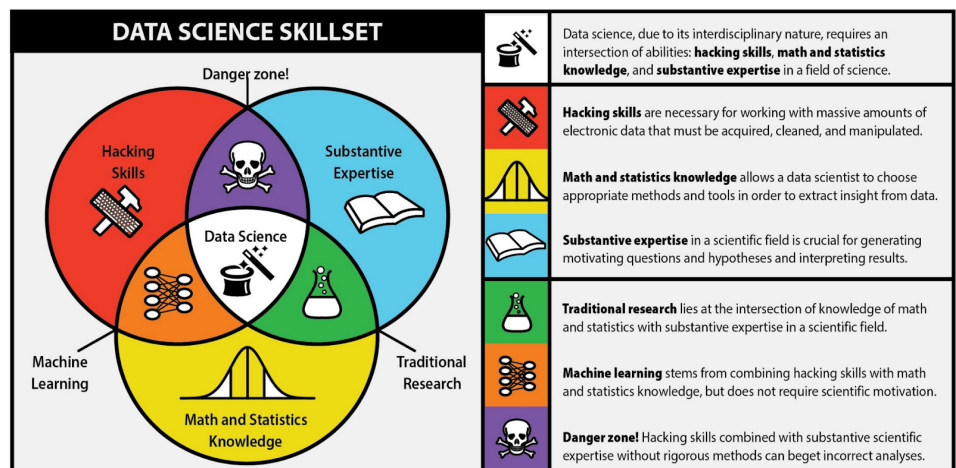
## What is Data Science?

Data Science is a blend of various tools, algorithms, and machine learning principles with the goal to discover hidden patterns from raw data. It is also considered a multidisciplinary approach extracting insights from large volumes of data produced and collected by the organizations of today. Data science encompasses preparing data for analysis and processing, performing advanced data analysis, and presenting the results to reveal patterns and enable stakeholders to draw informed conclusions. Data preparation can involve cleansing, aggregating, and manipulating it to be ready for specific types of processing. Analysis requires the development and use of algorithms, analytics and AI models. It's driven by software that combs through data to find patterns within to transform these patterns into predictions that support business decision-making. The accuracy of these predictions must be validated through scientifically designed tests and experiments. And the results should be shared through the skillful use of data visualization tools that make it possible for anyone to see the patterns and understand trends.

To be a data scientist, you are required to use ***hacking/coding skills***, ***mathematics/statistics*** and ***subject-matter expertise***.

### Data scientists use data to:

- Test hypotheses
- Model processes
- Predict outcomes
- Detect anomalies
- Extract information (and eventually knowledge)
- Train machine learning models
- Predict outcomes
- Explain the world



## Why is Data Science important?

According to IDC, by 2025, global data will grow to 175 zettabytes. Data Science enables companies to efficiently understand gigantic data from multiple sources and derive valuable insights to make smarter data-driven decisions. This helps in visualizing data that is understandable for business stakeholders to build future road-maps and trajectories. Data Science is widely used in various industry domains, including marketing, healthcare, finance, banking, policy work, and more.

## FAU Related Courses

- CAP 2751 - Tools for Data Science
- CAP 2753 - Experimental Design and Data Analysis
- CAP 4773 - Introduction to Data Science and Analytics
- ISC 4941 - Data Science Capstone
- CAP 5768 - Introduction to Data Science