Syllabus

Module 1

Introduction

In this capstone, we will predict if the Falcon 9 first stage will land successfully. SpaceX advertises Falcon 9 rocket launches on its website, with a cost of 62 million dollars; other providers cost upward of 165 million dollars each, much of the savings is because SpaceX can reuse the first stage. Therefore if we can determine if the first stage will land, we can determine the cost of a launch. This information can be used if an alternate company wants to bid against SpaceX for a rocket launch. In this module, you will be provided with an overview of the problem and the tools you need to complete the course.

More

3 videos, 1 reading, 2 practice quizzes

expandmodule 1 material

1. **Reading:**Course Introduction

# Course Introduction

Hello! And welcome to this capstone course.

Congratulations for making it this far! My name is Joseph Santarcangelo, Yan Luo and Azim Hirjani . We are pleased to be your instructors and course developers for this capstone course. You will apply your data science skills as a Data scientist for a private space launch company in this project.

As a starting point of almost all data science projects, you need to collect data, as much and relevant as possible.

You will be collecting data from various sources. After your raw data has been collected, you will need to improve the quality by performing data wrangling.

Then you can start exploring the processed data.  We will be your guide as we explore some really interesting real-world datasets together. You'll get to practice your SQL skills as we query the data and gather insights.

You'll gain further insights into the data by applying some basic statistical analysis and data visualization, you'll be able to see directly how variables might be related to each other.

 We'll drill down into finer levels of detail by splitting the data into groups defined by categorical variables or factors in your data.

You will be guided to build, evaluate, and refine predictive models for discovering more exciting insights.

The final task of this capstone project is to create a presentation that will be developed into stories of all your analysis.

Thanks and good luck!

1. **[Video:](https://www.coursera.org/lecture/applied-data-science-capstone/project-scenario-and-overview-g7Jjl)**[Project Scenario and Overview](https://www.coursera.org/lecture/applied-data-science-capstone/project-scenario-and-overview-g7Jjl)
2. **Ungraded Plugin:**Getting started with GitHub
3. **Video:**Data Collection Overview
4. **App Item:**Hands-on Lab: Complete the Data Collection API Lab
5. **App Item:**Hands-on Lab: Complete the Data Collection with Web Scraping lab
6. **Practice Quiz:**Check Points: Data Collection API
7. **Video:**Data Wrangling Overview
8. **App Item:**Hands-on Lab: Data Wrangling
9. **Practice Quiz:**Check Points: Data Wrangling

**Graded:**Graded Quiz: Data Collection API with Webscraping

**Graded:**Graded Quiz: Data Wrangling Quiz

Module 2

Exploratory Data Analysis (EDA)

In this module, you will collect data on the Falcon 9 first-stage landings. You will use a RESTful API and web scraping. You will also convert the data into a dataframe and then perform some data wrangling.

1 video, 2 practice quizzes

expandmodule 2 material

1. [**Video:**Exploratory Data Analysis Overview](https://www.coursera.org/lecture/applied-data-science-capstone/exploratory-data-analysis-overview-TYFnv)
2. **App Item:**Hands-on Lab: Complete the EDA with SQL
3. **Practice Quiz:**Check Points: Exploratory Analysis Using SQL
4. **App Item:**EDA with Visualization Lab
5. **Practice Quiz:**Check Points: Complete the EDA with Visualization

**Graded:**Exploratory Data Analysis using SQL

**Graded:**Exploratory Data Analysis for Data Visualization

Module 3

Interactive Visual Analytics and Dashboard

In this module, you will build a dashboard to analyze launch records interactively with Plotly Dash. You will then build an interactive map to analyze the launch site proximity with Folium.

1 video, 1 practice quiz

expandmodule 3 material

1. [**Video:**Interactive Visual Analytics and Dashboards](https://www.coursera.org/lecture/applied-data-science-capstone/interactive-visual-analytics-and-dashboards-4VaNA)
2. **App Item:**Hands-on Lab: Interactive Visual Analytics with Folium lab
3. **App Item:**Hands-on Lab: Build an Interactive Dashboard with Ploty Dash
4. **Practice Quiz:**Check Points: Interactive Visual Analytics and Dashboard

**Graded:**Graded Quiz: Interactive Visual Analytics and Dashboard

Module 4

Predictive Analysis (Classification)

In this module, you will use machine learning to determine if the first stage of Falcon 9 will land successfully. You will split your data into training data and test data to find the best Hyperparameter for SVM, Classification Trees, and Logistic Regression. Then find the method that performs best using test data.

1 video, 1 practice quiz

expandmodule 4 material

1. [**Video:**Predictive Analysis Overview](https://www.coursera.org/lecture/applied-data-science-capstone/predictive-analysis-overview-NtL9F)
2. **App Item:**Hands-on Lab: Complete the Machine Learning Prediction lab
3. **Practice Quiz:**Check Points: Predictive Analysis

**Graded:**Graded Quiz: Predictive Analysisis

Module 5

Present Your Data-Driven Insights

In this module, you will compile all of your activities into one place and deliver your data-driven insights to determine if the first stage of Falcon 9 will land successfully.

2 videos, 3 readings

expandmodule 5 material

1. [**Video:**Elements Of A Successful Data Findings Report](https://www.coursera.org/lecture/applied-data-science-capstone/elements-of-a-successful-data-findings-report-G92xT)
2. **Ungraded Plugin:**Reading: Structure Of A Report
3. **Video:**Best Practices For Presenting Your Findings
4. **Ungraded Plugin:**(Optional) Hands-on Lab: Getting Started With PowerPoint For The Web
5. **Ungraded Plugin:**(Optional) Hands-on Lab: Basics of PowerPoint
6. **Ungraded Plugin:**(Optional) Hands-on Lab: Save your PowerPoint Presentation as PDF
7. **Ungraded Plugin:**Submission Overview and Instructions
8. **Ungraded Plugin:**Exercise: Preparing Your Presentation (with provided slide template)
9. **Reading:**Congratulations and Next Steps
10. **Reading:**Credits and Acknowledgments
11. **Reading:**Copyrights and Trademarks

**Graded:**Peer Review: Submit your Work and Review your Peers