Fresno Data Science - Boot Camp

**Fundamentals of**

**Data Science and Machine Learning**

**(June 2019)**

**Course Outline** **Hands-On**

**Day 1**

Course Overview

Python Data Science Stack

Python Quick Review

Descriptive Statistics

From Lists to Arrays: (NumPy)

Data Exploration: (Pandas)

**Day 2**

Projects Discussion

The Data Science Process

Data Preparation and Transformation

Data Visualization: (Matplotlib)

Machine Learning Overview

Machine Learning Algorithms

Data Modeling: (Scikit-learn)

Pima Diabetes data Take-home Lab

**Day 3**

Pima Diabetes Lab In-class walkthrough

ML Algorithms Review Whiteboarding

Titanic data Data Exploratory Analysis

Imputing missing values

K-fold Cross Validation and Model Selection

Project Updates

UCLA admissions data Take-home Lab

**Day 4**

UCLA admissions Lab In-class walkthrough

Feature Selection and Feature Engineering

Model Hyperparameters and Grid Search

Model Refinement (Overfitting/Underfitting)

Teacher Attractiveness data In-class project

**Day 5**

Course Review

Project Updates

Deep Learning and AI In-class Lab

Image Recognition/Natural Language Processing Demonstration

**Day 6**

Project Presentations

Next Steps

**\*This course typically requires 25 hours, but we are attempting to complete all of this in 18 hours. The attendees may choose to add an additional day if necessary.**