Welcome to Advanced Data Analytics

This material provides a highly interactive overview of machine learning, neural networks, randomness, and unconventional data sources. In this course, the DataCamp learning resource contains two parts: *Advanced Data Analytics*, and *Advanced Data Analytics: Supplement*.

Throughout the course you will find a variety of interactive elements that are designed to challenge and deepen your comprehension of the topics presented. It is important to note that these elements are not meant to reveal any characteristics about the format or design of the final assessment. Instead, they are designed specifically to help you learn, and are offered as tools for you to use to your advantage as you work through the course.

Learning Resource

This course uses DataCamp as the primary learning resource. To prepare for the performance assessment, it is recommended that you complete the targeted DataCamp material in both the *Advanced Data Analytics* and *Advanced Data Analytics: Supplement* tracks.

Advanced Data Analytics
The first track consists of **five** DataCamp courses, with the following targeted content:

1. **Time Series Analysis in R**
    - *Predicting the Future*
    - *Exploratory Time Series Data Analysis*
2. **ARIMA Models in R**
    - *Time Series Data and Models*
    - *Fitting ARMA models*
    - *ARIMA Models*
3. **Introduction to Deep Learning in Python**
    - *Basics of deep learning and neural networks*
    - *Building deep learning models with Keras*
4. **Introduction to TensorFlow in Python**
    - *Neural Networks*
5. **Natural Language Generation in Python**
    - *Introduction to sequential data*
    - *Write like Shakespeare*
    - *Translate words to a different language*
    - *Autocomplete your sentences*

Advanced Data Analytics: Supplement

The second track consists of **fourteen** DataCamp courses, with the following targeted content:

1. **Forecasting in R**
    - *Exponential smoothing*
    - *Forecasting with ARIMA models*
2. **Time Series Analysis in Python**
    - *Correlation and Autocorrelation*
    - *Some Simple Time Series*
3. **ARIMA Models in Python**
    - *Chapter 1 - ARMA Models*
    - *Chapter 2 - Fitting the Future*
    - *Chapter 3 - The Best of the Best Models*
4. **Machine Learning for Time Series Data in Python**
    - *Time Series as Inputs to a Model*
    - *Predicting Time Series Data*
    - *Validating and Inspecting Time Series Models*
5. **Introduction to Deep Learning with Keras**
    - *Introducing Keras*
    - *Improving Your Model Performance*
    - *Advanced Model Architectures*
6. **Introduction to Natural Language Processing in Python**
    - *Regular expressions & word tokenization*
    - *Simple topic identification*
    - *Building a "fake news" classifier*
7. **Recurrent Neural Networks for Language Modeling in Python**
    - *RNN Architecture*
    - *Multi-class classification*
8. **Advanced NLP with spaCy**
    1. *Finding Words, Phrases, Names, and Concepts*
    2. *Training a Neural Network Model*
9. **Feature Engineering for NLP in Python**
    - *Text preprocessing, POS tagging and NER*
10. **Introduction to TensorFlow in R**
    - *Deep Learning in TensorFlow: Creating a Deep Neural Network*
11. **Introduction to Natural Language Processing in R**
    - *True Fundamentals*
    - *Advanced Techniques*
12. **Introduction to Text Analysis in R**
    - *Wrangling Text*
13. **Text Mining with Bag-of-Words in R**
    - *Jumping into text mining with bag of words*
14. **Introduction to Git**
    - *Basic workflow*
    - *Repositories*
    - *Undo*
    - *Working with branches*