Predictive Analytics for Business

(formerly Business Analyst)

Nanodegree Syllabus

Learn to apply predictive analytics and business intelligence to solve real-world business problems.

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Before You Start

Prerequisites: In order to succeed in this program, you should be comfortable working with data in spreadsheets. You don't need any programming experience, but should have basic statistics and math knowledge.

Educational Objectives: This Nanodegree program prepares you for a career in predictive analytics, and enables you to master a scientific approach to solving problems with data. You'll build fluency in two leading software packages: Alteryx, a tool that enables you to prepare, blend, and analyze data quickly; and Tableau, a powerful data visualization tool. Over the course of the program, you'll learn to:

- Create mental models to clearly define business issues
- Visualize and prepare data to improve efficacy of predictive models
- Identify and implement a variety of predictive modeling techniques.

Contact Info

While going through the program, if you have questions about anything, you can reach us at enterprise-support@udacity.com. For help from Udacity mentors and peers, please visit the Udacity classroom.

Nanodegree Program Info

Technical Requirements
Hardware Requirements: webcam, microphone
Software and Software Version Requirements: Alteryx (license provided), Tableau public, DB browser for SQLite

LENGTH OF PROGRAM*: 4 months
FREQUENCY OF CLASSES: Self-paced
TEXTBOOKS REQUIRED: None

*This is a self-paced program and the length is an estimation of total hours the average student may take to complete all required coursework, including lecture and project time. Actual hours may vary.

Project 1: Predict Sales for a Catalog Launch

A home-goods manufacturer wants to predict expected profits from a catalog launch. You will apply a framework to work through the problem and build a linear regression model to provide results and a recommendation.

Supporting Lesson Content: Problem Solving with Advanced Analytics

Lesson Title	Learning Outcomes
THE PROBLEM SOLVING FRAMEWORK	• Learn a structured framework for solving problems with advanced analytics.
SELECTING AN ANALYTICAL METHODOLOGY	• Select the most appropriate analytical methodology based on the context of the business problem.
LINEAR REGRESSION	• Build, validate, and apply linear regression models to solve a business problem.

Project 2: Create an Analytical Dataset

A pet store chain is selecting the location for its next store. You will use data preparation techniques to build a robust analytic dataset and use it to build a predictive model to select the best location.

Supporting Lesson Content: Data Wrangling

Lesson Title	Learning Outcomes
UNDERSTANDING DATA	• Understand the most common data types. • Understand the various sources of data.
DATA ISSUES	• Identify common types of dirty data. • Make adjustments to dirty data to prepare a dataset. • Identify and adjust for outliers.

Supporting Lesson Content: Data Wrangling (Continued)

Lesson Title	Learning Outcomes
DATA FORMATTING	• Summarize, cross-tabulate, transpose, and reformat data to prepare a dataset for analysis.
DATA BLENDING	• Join and union data from different sources and formats.

Project 3: Predict Loan Default Risk

A bank recently received an influx of loan applications. You will build and apply a classification model to provide a recommendation on which loan applicants the bank should lend to.

Supporting Lesson Content: Classification Models

Lesson Title	Learning Outcomes
CLASSIFICATION PROBLEMS	• Understand the fundamentals of classification modeling and how it differs from modeling numeric data.
BINARY CLASSIFICATION MODELS	• Build logistic regression and decision tree models. • Use stepwise to automate predictor variables selection. • Score and compare models and interpret the results.
BINARY CLASSIFICATION MODELS	• Build and compare forest and boosted models and interpret their results. • Score and compare models and interpret the results.

Project 4: A/B Test a Menu Launch

A chain of coffee shops is considering launching a new menu. You will design and analyze an A/B test and write up a recommendation on whether the chain should introduce the new menu.

Supporting Lesson Content: A/B Testing

Lesson Title	Learning Outcomes
A/B TESTING FUNDAMENTALS	• Understand the fundamentals of A/B testing, including selecting target and control units and variables and the duration of a test.
RANDOMIZED DESIGN TESTS	• Select test and control variables and understand the importance of sample size. • Design a randomized design A/B test and analyze the results.
MATCHED PAIR PRACTICE	• Match test units to control units. • Design a matched pair design A/B test and analyze the results.

No Project: Time Series Forecasting

Time Series Forecasting is a powerful analytical tool. In this course, you learn how ETS and ARIMA models are used to forecast data and how they deal with trends and seasonality. These skills will be evaluated in the final project.

Project 5: Combine Predictive Techniques

A grocery store chain is planning a significant expansion. You will use multiple analytical techniques to provide recommendations on how to expand. After completing the project, you will feel comfortable combining predictive techniques and delivering results to complex business problems.

Supporting Lesson Content: Segmentation and Clustering

Lesson Title	Learning Outcomes
SEGMENTATION FUNDAMENTALS	• Understand the difference between localization, standardization, and segmentation.
PREPARING DATA FOR CLUSTERING	• Scale data to prepare a dataset for cluster modeling. • Select variables to include based on the business context.
VARIABLE REDUCTION	• Use principal components analysis (PCA) to reduce the number of variables for cluster model.
CLUSTERING MODELS	• Select the appropriate number of clusters. • Build and apply a k-centroid cluster model.
VALIDATING AND APPLYING CLUSTERS	• Validate the results of a cluster model. • Visualize and communicate the results of a cluster model.
CREATING VISUALIZATION WITH TABLEAU	• Become proficient in basic Tableau functionality, including charts, filters, hierarchies, etc. • Create calculated fields in Tableau.

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