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Predictive Analytics for Business

Overview

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
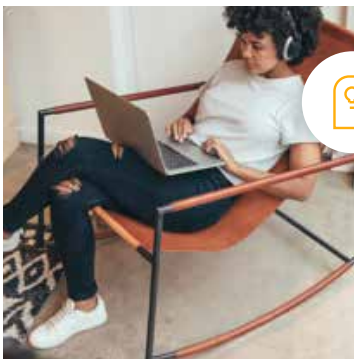- Identify and implement a variety of predictive modeling techniques

IN COLLABORATION WITH

+tableau   alteryx

Estimated Time:
3 Months at
10hrs/week

Prerequisites:
Algebra,
Descriptive
Statistics, and
Excel

Flexible Learning:
Self-paced, so
you can learn on
the schedule that
works best for you

Need Help?
udacity.com/advisor
Discuss this program
with an enrollment
advisor.

Course 1: Problem Solving with Advanced Analytics

In this course, we give you a framework to help you organize and plan your analytical approach. We also introduce both simple Linear Regression and Multiple Linear Regression.

Course Project 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.

	LEARNING OUTCOMES	
LESSON ONE	**The Problem Solving Framework**	• Learn a structured framework for solving problems with advanced analytics
LESSON TWO	**Selecting an Analytical Methodology**	• Select the most appropriate analytical methodology based on the context of the business problem
LESSON THREE	**Linear Regression**	• Build, validate, and apply linear regression models to solve a business problem

Course 2: Data Wrangling

Data Wrangling is at the core of all data activity. In this course you learn how to work with different data types,dirty data, and outliers. You will also learn how to reformat data and join data from different sources together.

Course Project
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.

	LEARNING OUTCOMES	
LESSON ONE	**Understanding Data**	• Understand the most common data types • Understand the various sources of data
LESSON TWO	**Data Issues**	• Identify common types of dirty data • Make adjustments to dirty data to prepare a dataset • Identify and adjust for outliers
LESSON THREE	**Data Formatting**	• Summarize, cross-tabulate, transpose, and reformat data to prepare a dataset for analysis
LESSON FOUR	**Data Blending**	• Join and union data from different sources and formats

Course 3: Classification Models

Classification models are a powerful tool for business analyst. In this course, you learn more about binary and non-binary classification models and how to use them to drive business insights.

Course Project
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.

	LEARNING OUTCOMES	
LESSON ONE	**Classification Problems**	• Understand the fundamentals of classification modeling and how it differs from modeling numeric data
LESSON TWO	**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
LESSON THREE	**Non-Binary Classification Models**	• Build and compare forest and boosted models and interpret their results • Score and compare models and interpret the results

Course 4: A/B Testing

Helping businesses make the best decisions is an essential part of Business Analysis. Planning and executing the analysis of an AB test allow you to provide confident recommendations. In this course, you learn how to create, execute, and analyze an AB test.

Course Project
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.

	LEARNING OUTCOMES	
LESSON ONE	**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
LESSON TWO	**Randomized Design Tests**	• Select test and control variables and understand the i importance of sample size • Design a randomized design A/B test and analyze the results
LESSON THREE	**Matched Pair Design Tests**	• Match test units to control units • Design a matched pair design A/B test and analyze the results
LESSON FOUR	**Matched Pair Practice**	• Use trend and seasonality as control variables for a matched pair design A/B test

Course 5: 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.

Course Project
Forecast Video Game Demand

> A video game producer is planning production levels. You will use time series forecasting models to forecast monthly demand and provide a recommendation to help match supply to demand.

	LEARNING OUTCOMES	
LESSON ONE	**Fundamentals of Time Series Forecasting**	• Understand trend, seasonal, and cyclical behavior of time series data
LESSON TWO	**ETS Models**	• Use time series decomposition plots • Build out an ETS model in Alteryx
LESSON THREE	**ARIMA Models**	• Stationarize data through differencing, a process that prepares data for ARIMA modeling • Build out an ARIMA model in Alteryx
LESSON FOUR	**Analyzing and Visualizing Results**	• Use holdout samples to compare models and select the best one for a business problem • Visualize your forecasts through various plots

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Course 6: Segmentation and Clustering

Segmentation and Clustering are effective methods for finding patterns in your data. In this course, you learn how to prepare data to be clustered appropriately and interpret results.

Course Project 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.

|	**LEARNING OUTCOMES**
LESSON ONE	**Segmentation Fundamentals** • Understand the difference between localization, standardization, and segmentation
LESSON TWO	**Preparing Data for Clustering** • Scale data to prepare a dataset for cluster modeling • Select variables to include based on the business context
LESSON THREE	**Variable Reduction** • Use principal components analysis (PCA) to reduce the number of variables for cluster model
LESSON FOUR	**Clustering Models** • Select the appropriate number of clusters • Build and apply a k-centroid cluster model
LESSON FIVE	**Validating and Applying Clusters** • Validate the results of a cluster model • Visualize and communicate the results of a cluster model
LESSON SIX	**Creating Visualization With Tableau** • Become proficient in basic Tableau functionality, including charts, filters, hierarchies, etc. • Create calculated fields in Tableau

Our Classroom Experience
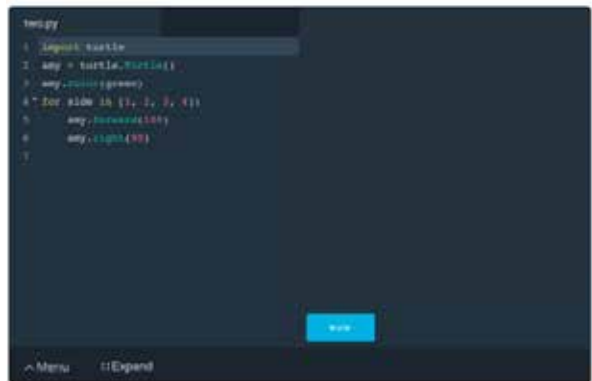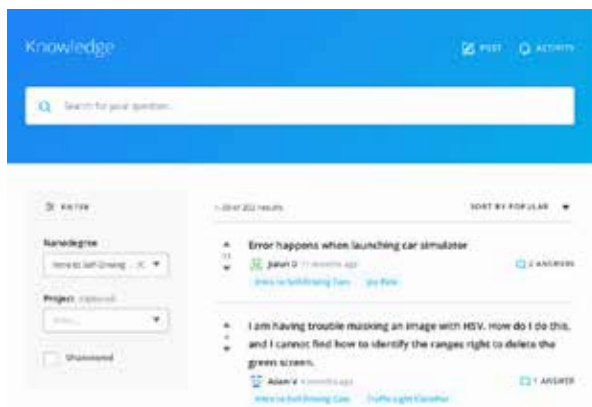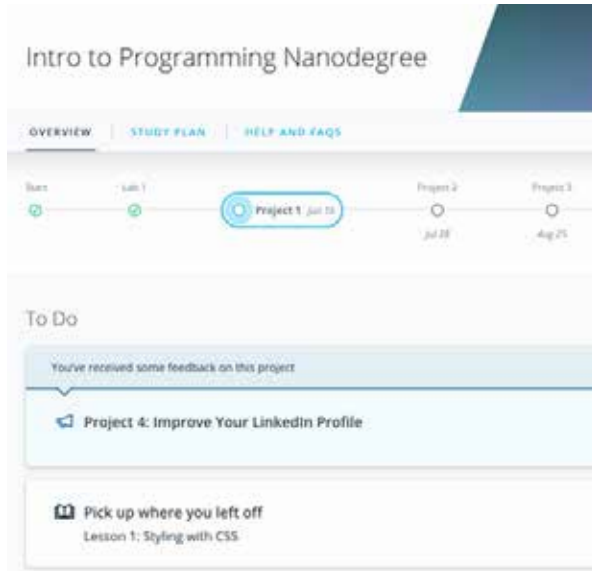
REAL-WORLD PROJECTS
Build your skills through industry-relevant projects. Get personalized feedback from our network of 900+ project reviewers. Our simple interface makes it easy to submit your projects as often as you need and receive unlimited feedback on your work.

KNOWLEDGE
Find answers to your questions with Knowledge, our proprietary wiki. Search questions asked by other students, connect with technical mentors, and discover in real-time how to solve the challenges that you encounter.

STUDENT HUB
Leverage the power of community through a simple, yet powerful chat interface built within the classroom. Use Student Hub to connect with fellow students in your program as you support and learn from each other.

WORKSPACES
See your code in action. Check the output and quality of your code by running them on workspaces that are a part of our classroom.

QUIZZES
Check your understanding of concepts learned in the program by answering simple and auto-graded quizzes. Easily go back to the lessons to brush up on concepts anytime you get an answer wrong.

CUSTOM STUDY PLANS
Preschedule your study times and save them to your personal calendar to create a custom study plan. Program regular reminders to keep track of your progress toward your goals and completion of your program.

PROGRESS TRACKER
Stay on track to complete your Nanodegree program with useful milestone reminders.

Learn with the Best

Patrick Nussbaumer

INSTRUCTOR

Patrick Nussbaumer is Technical Activation Director at Alteryx, Inc. Prior to Alteryx, Patrick has spent the past 20 years in a variety of roles focused on data analysis, telecommunications, and financial services industries.

Ben Burkholder

INSTRUCTOR

Ben Burkholder is a senior solution engineer at Alteryx, Inc. In this role he works extensively with clients to help develop plans to solve complex business problems around data preparation, geospatial analysis, and predictive analytics.

Maureen Wolfson

INSTRUCTOR

Maureen Wolfson is a Solution Engineer at Alteryx, Inc. She has more than 20 years of data analysis expertise specializing in data, customer and geospatial analysis.

Rod Light

INSTRUCTOR

Rod Light is a Solutions Engineer Practice Lead at Alteryx, where he helps customers and prospects design data analytics solutions for their businesses using Alteryx.

All Our Nanodegree Programs Include:

EXPERIENCED PROJECT REVIEWERS

REVIEWER SERVICES

- Personalized feedback & line by line code reviews
- 1600+ Reviewers with a 4.85/5 average rating
- 3 hour average project review turnaround time
- Unlimited submissions and feedback loops
- Practical tips and industry best practices
- Additional suggested resources to improve

TECHNICAL MENTOR SUPPORT

MENTORSHIP SERVICES

- Questions answered quickly by our team of technical mentors
- 1000+ Mentors with a 4.7/5 average rating
- Support for all your technical questions

PERSONAL CAREER SERVICES

CAREER SUPPORT

- Resume support
- Github portfolio review
- LinkedIn profile optimization

Frequently Asked Questions

PROGRAM OVERVIEW

WHY SHOULD I ENROLL?
This Nanodegree program offers you the opportunity to master analytical skills valued by top employers, while establishing a portfolio of work demonstrating your ability to solve business problems. After graduating, you will have the skills needed to join a large corporation or a small firm, or even go independent as a freelance business analyst.

WHAT JOBS WILL THIS PROGRAM PREPARE ME FOR?
As a graduate of this program, you will be well prepared to fill a wide array of business analyst roles. These include: Business Analyst, Business Intelligence Analyst, Market Analyst, Data Analyst, Business Systems Analyst, Product Manager, System Analyst, and Management Consultant.

HOW DO I KNOW IF THIS PROGRAM IS RIGHT FOR ME?
Data is a transformational force in every business and analysis of data has become a mandatory skill to have to provide value in any organization.
If you're interested in fields such as Business Analytics, Forecasting, Classification, and Data Wrangling this course is the perfect course to take. It provides excellent content to first teach you the skills, you will be connected with a mentor, and you will have the opportunity to complete challenging projects that will demonstrate your new knowledge.

WHAT IS THE DIFFERENCE BETWEEN THE DATA ANALYST NANODEGREE PROGRAM AND THE PREDICTIVE ANALYTICS FOR BUSINESS NANODEGREE PROGRAM?
The Predictive Analytics for Business Nanodegree program focuses on using predictive analytics to support decision making, and does not go into coding like the Data Analyst Nanodegree program does. You will use software tools (Alteryx and Tableau) rather than open source programming languages. This Nanodegree program also spends more time exploring predictive analytics, and less time on topics like statistics, data wrangling, and data visualization.

The Data Analyst Nanodegree program requires coding experience and deeper statistics knowledge. It dives further into data wrangling and analytics using Python and SQL. Because data analysts are expected to do a lot more data cleaning, model making, and data processing, this Nanodegree program is accordingly more technical than the Predictive Analytics for Business Nanodegree program.

ENROLLMENT AND ADMISSION

DO I NEED TO APPLY? WHAT ARE THE ADMISSION CRITERIA?
No. This Nanodegree program accepts all applicants regardless of experience and specific background.

FAQs Continued

WHAT ARE THE PREREQUISITES FOR ENROLLMENT?
We expect students to have basic statistics and math knowledge, including familiarity with descriptive and inferential statistics. Students should also be familiar with basic algebra in order to understand the mathematical models that will be presented in the Nanodegree program.

IF I DO NOT MEET THE REQUIREMENTS TO ENROLL, WHAT SHOULD I DO?
We have a number of Nanodegree programs and free courses that can help you prepare, including:

- **Business Analytics Nanodegree program**
- **Intro to Descriptive Statistics**
- **SQL for Data Analysis**
- **Data Visualization in Tableau**

TUITION AND TERM OF PROGRAM

HOW IS THIS NANODEGREE PROGRAM STRUCTURED?
The Predictive Analytics Nanodegree program is comprised of content and curriculum to support five (5) projects. We estimate that students can complete the program in four (4) months, working 10 hours per week.

Each project will be reviewed by the Udacity reviewer network. Feedback will be provided and if you do not pass the project, you will be asked to resubmit the project until it passes.

HOW LONG IS THIS NANODEGREE PROGRAM?
Access to this Nanodegree program runs for the length of time specified in the payment card above. If you do not graduate within that time period, you will continue learning with month to month payments. See the **Terms of Use** and **FAQs** for other policies regarding the terms of access to our Nanodegree programs.

WHAT IS THE SCHOOL OF DATA SCIENCE, AND HOW DO I KNOW WHICH PROGRAM TO CHOOSE?
Udacity's School of Data consists of several different Nanodegree programs, each of which offers the opportunity to build data skills, and advance your career. These programs are organized around career roles like Business Analyst, Data Analyst, Data Scientist, and Data Engineer.

The School of Data currently offers three clearly-defined career paths in Business Analytics, Data Science, and Data Engineering. Whether you are just getting started in data, are looking to augment your existing skill set with

FAQs Continued

in-demand data skills, or intend to pursue advanced studies and career roles, Udacity's School of Data has the right path for you! Visit **How to Choose the Data Science Program** That's Right for You to learn more.

SOFTWARE AND HARDWARE

WHAT SOFTWARE AND VERSIONS WILL I NEED IN THIS PROGRAM?
For this Nanodegree program you will need a computer, Internet, and access to a Windows environment. If you use a Mac computer, we will have instructions on how to set up your computer with a Windows environment.