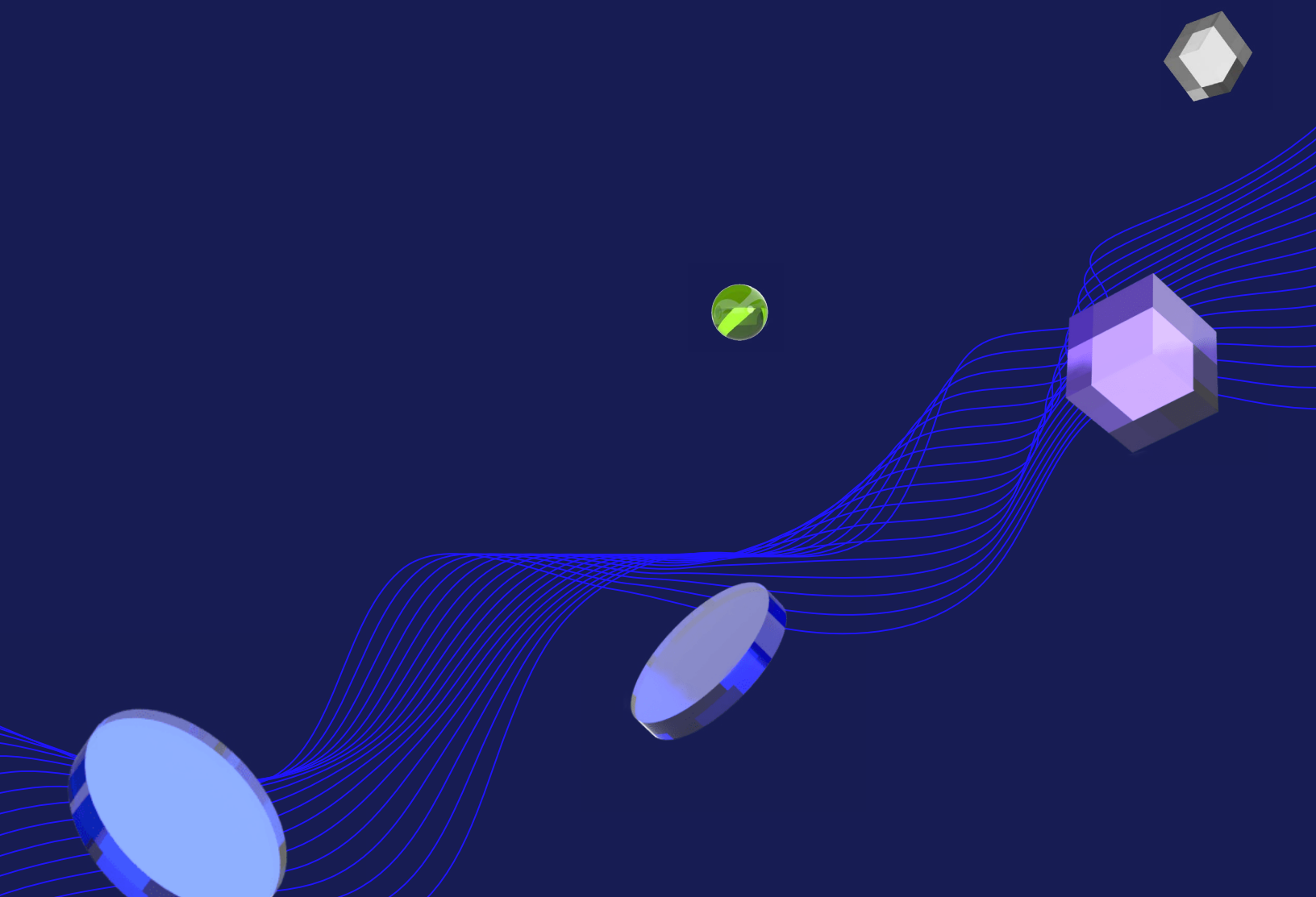
INDIVIDUAL LEARNERS

UDACITY

SCHOOL OF BUSINESS

Business Analytics

Nanodegree Program Syllabus



Overview

Gain foundational data skills applicable to any industry. Collect and analyze data, model business scenarios, and communicate findings with SQL, Excel, and Tableau.

Built in collaboration with:

MODE

Program information

Estimated Time

3 months at 10hrs/week*

Skill Level

Beginner

Prerequisites

There are no prerequisites for this program, aside from basic computer skills. Learners should be comfortable opening files, folders, and applications, and performing operations like copy/paste.

Required Hardware/Software

Learners need access to a computer running OS X or Windows.

*The length of this program is an estimation of total hours the average student may take to complete all required coursework, including lecture and project time. If you spend about 5-10 hours per week working through the program, you should finish within the time provided. Actual hours may vary.

Course 1

Welcome to the Program

In the lessons leading to the first project, learners will get to know their instructors and learn how data is being applied in many industries. They'll also learn about course structure, navigation, learning resources, deadlines, projects, and everything that will help them succeed in this course. They will then get to work on their first project, where they will draw insights from interactive dashboards. A large part of working with data is being able to interpret data visualizations and explain insights to others. This project will build a learner's intuition on working with data dashboards, while also showing them the types of beautiful visualizations they will be able to produce by the end of this program!

Course Project

Interpret a Data Visualization

In this project, learners will explore an interactive data dashboard to uncover insights. They'll write a short report explaining each insight, and how they found the information to reach their conclusion from the dashboard.

Course 2

Introduction to Data

Learn how to use statistics and visuals to find and communicate insights. Develop Excel skills to manipulate, analyze, and visualize data in a spreadsheet. Build Excel models to analyze possible business outcomes.

Course Project

Analyze NYSE Data

In this project, learners will work with a New York Stock Exchange (NYSE) dataset that contains fundamental financial data for 500 companies. They will use spreadsheets to analyze and summarize the data using statistics and data visualizations. Then they will communicate the key findings in a professional manner. Learners will also design a dashboard that calculates the financial metrics and auto populates the income statement for each company using data validation and advanced lookup tools within Excel. They will then forecast financial metrics within the income statement, based on three scenarios with distinct assumptions for a company from the NYSE dataset. By the end of this project, learners will be able to:

- Calculate summary statistics using spreadsheets.
- Create data visualizations using spreadsheets.
- Ask questions and answer them using data.
- Work with real-world data that has missing and incorrect values.
- Calculate key business metrics in financial analysis and interpret values.
- Forecast financial metrics using scenario analysis.

Lesson 1

Descriptive Statistics I

- Learn data types, measures of center, and the basics of mathematical notation.

Lesson 2

Descriptive Statistics II

- Learn a common visual method for quantitative data, measures of spread, and the difference between descriptive and inferential statistics.

Lesson 3

Spreadsheets: Getting Started

- Learn about the keys steps of the data analysis process.
- Use cell referencing and menu shortcuts.

Lesson 4

Spreadsheets: Manipulate Data

- Sort and filter data.
- Use text and math functions.
- Split columns and remove duplicates.

Lesson 5

Spreadsheets: Analyze Data

- Summarize data with aggregation and conditional functions.
- Use pivot tables and lookup functions.

Lesson 6

Spreadsheets: Visualize Data

- Build data visualizations for quantitative and categorical data.
- Create pie, bar, line, scatter, histogram, and boxplot charts.
- Build professional presentations.

Lesson 7

Metrics

- Become familiar with business metrics used by business analysts in the area of marketing, sales, growth, engagement, and financial analysis.
- Calculate and interpret key performance metrics.
- Calculate metrics and create plots to visualize metrics in Excel.

Lesson 8

Excel Modelling

- Understand the fundamentals of sales and financial forecasting models.
- Create forecasting models using advanced lookup and data validation tools (INDEX, MATCH, OFFSET) in Excel.

Course 3

SQL for Data Analysis

Learn to use structured query language (SQL) to extract and analyze data stored in databases.

Course Project

Query Digital Music Store Database

In this project, learners will query a digital music store database which holds information regarding the store's media, employees, and customers. Learners will use the database to help the store gain an understanding of the types of music that are purchased, where customers live, and how the company might optimize their business practices.

Lesson 1

Basic SQL

- Become fluent in basic SQL commands including SELECT, FROM, WHERE, and corresponding logical operators.

Lesson 2

SQL Joins

- Combine data tables using SQL joins to to answer more complex business questions.

Lesson 3

SQL Aggregations

- Aggregate data in SQL including COUNT, SUM, MIN, and MAX.
- Write CASE and DATE functions, as well as work with NULL values.

Lesson 4

Advanced SQL Lessons (Optional)

- Use subqueries, also called CTEs, in a number of different situations.
- Use window functions including RANK, NTILE, LAG, LEAD new functions along with partitions to complete complex tasks.
- Clean data, optimize queries, and write advanced JOINs.

Course 4

Data Visualization with Tableau

Sharing insights is an integral part of working with data. In this project, learners will build interactive dashboards with Tableau to tell stories from data. They'll use a dataset of flight delays in the US to visualize the quality of airlines and airports, find the best times to fly, and more. These types of visualizations help guide decision making to reach the best outcomes.

Course Project

Build Data Dashboards

In this project, learners will build interactive dashboards with Tableau and use them to discover and communicate insights from data. They'll use a dataset of flight delays in the US to visualize the quality of airlines and airports, find the best times to fly, and more.

Lesson 1

Data Visualization Fundamentals

- Evaluate the quality of data visualizations and build high quality visualizations.

Lesson 2

Design Principles

- Implement the best design practices, and to use the most appropriate chart for a particular situation.

Lesson 3

Creating Visualizations in Tableau

- Build data visualizations in Tableau.
- Use data hierarchies, filters, groups, sets, and calculated fields.
- Create map-based data visualizations in Tableau.

Lesson 4

Telling Stories with Tableau

- Build interactive Tableau dashboards.
- Tell impactful stories using data.

Meet your instructors.

Josh Bernhard

Data Scientist at Nerd Wallet

Josh has been sharing his passion for data for nearly a decade at all levels of university, and as lead data science instructor at Galvanize. He's used data science for work ranging from cancer research to process automation.

Dana Sheahan

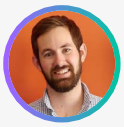
Content Developer

Dana is an electrical engineer with a master's in computer science from Georgia Tech. Her work experience includes software development for embedded systems in the Automotive Group at Motorola, where she was awarded a patent for an onboard operating system.

Mat Leonard

Instructor

Mat is a former physicist, research neuroscientist, and data scientist. He did his PhD and postdoctoral fellowship at the University of California, Berkeley.



Derek Steer

CEO at Mode

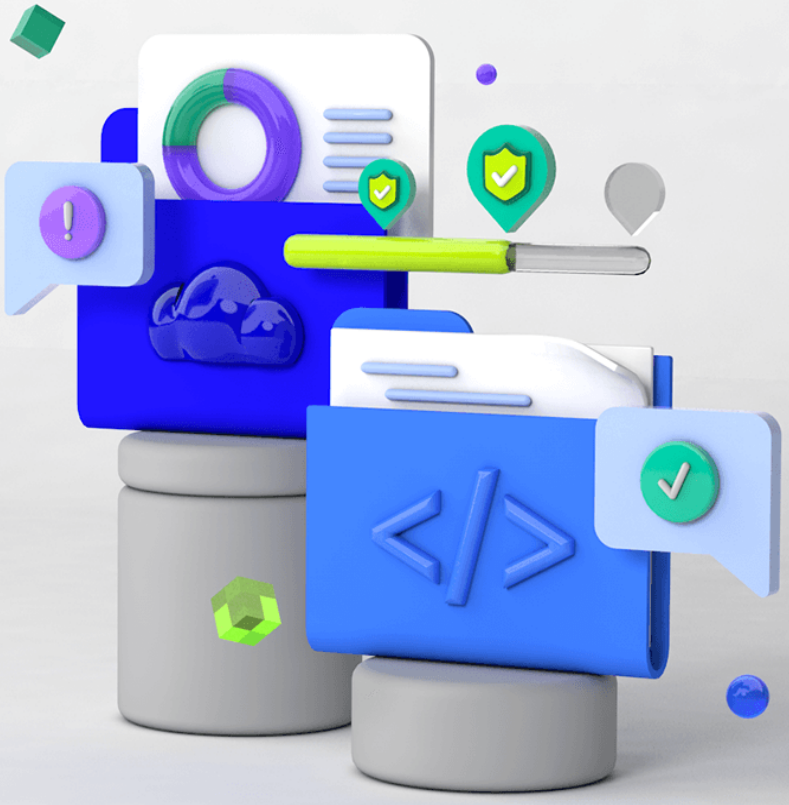
Derek is the CEO of Mode Analytics. He developed an analytical foundation at Facebook and Yammer and is passionate about sharing it with future analysts. He authored SQL School and is a mentor at Insight Data Science.

Sam Nelson

Product Lead

Sam is the product lead for Udacity's Data Analyst, Business Analyst, and Data Foundations programs. He's worked as an analytics consultant on projects in several industries, and is passionate about helping others improve their data skills.

Udacity's learning experience



Hands-on Projects

Open-ended, experiential projects are designed to reflect actual workplace challenges. They aren't just multiple choice questions or step-by-step guides, but instead require critical thinking.

Quizzes

Auto-graded quizzes strengthen comprehension. Learners can return to lessons at any time during the course to refresh concepts.

Knowledge

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

Custom Study Plans

Create a personalized study plan that fits your individual needs. Utilize this plan to keep track of movement toward your overall goal.

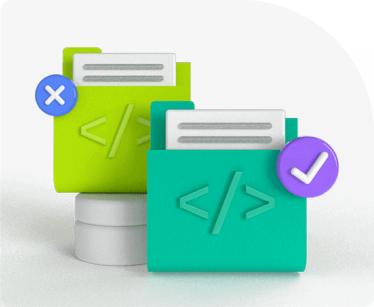
Workspaces

See your code in action. Check the output and quality of your code by running it on interactive workspaces that are integrated into the platform.

Progress Tracker

Take advantage of milestone reminders to stay on schedule and complete your program.

Our proven approach for building job-ready digital skills.



Experienced Project Reviewers

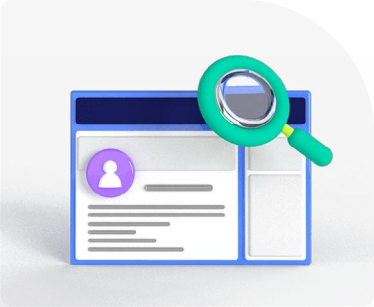
Verify skills mastery.

- Personalized project feedback and critique includes line-by-line code review from skilled practitioners with an average turnaround time of 1.1 hours.
- Project review cycle creates a feedback loop with multiple opportunities for improvement—until the concept is mastered.
- Project reviewers leverage industry best practices and provide pro tips.

Technical Mentor Support

24/7 support unblocks learning.

- Learning accelerates as skilled mentors identify areas of achievement and potential for growth.
- Unlimited access to mentors means help arrives when it's needed most.
- 2 hr or less average question response time assures that skills development stays on track.



Personal Career Services

Empower job-readiness.

- Access to a Github portfolio review that can give you an edge by highlighting your strengths, and demonstrating your value to employers.*
- Get help optimizing your LinkedIn and establishing your personal brand so your profile ranks higher in searches by recruiters and hiring managers.

Mentor Network

Highly vetted for effectiveness.

- Mentors must complete a 5-step hiring process to join Udacity's selective network.
- After passing an objective and situational assessment, mentors must demonstrate communication and behavioral fit for a mentorship role.
- Mentors work across more than 30 different industries and often complete a Nanodegree program themselves.

*Applies to select Nanodegree programs only.

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