UDACITY
FOR ENTERPRISE

SCHOOL OF BUSINESS

Data Science for Business Leaders

EXECUTIVE PROGRAM SYLLABUS

Overview

This Nanodegree is Built in Partnership With

alteryx

This goal of this Executive Program prepares a student with functional business experience (e.g., marketing, sales, finance) for applying data science capabilities at a leadership level. It teaches core data science concepts and practices and details the business opportunities behind data science.

A graduate of this program will be able to:

- Can unlock the value of data in their organizations to inform strategic decisions for business operational improvement and growth.
- Define data science roadmap for their company that includes the Human Capital plan, the Technical plan with the ability to present your plans and rationale to the CEO.
- Prepare a Data and Data Architecture strategy and detail how a Machine Learning Architecture strategy fits into it.

This program is comprised of 4 lessons and 1 project. The project you build will be an opportunity to demonstrate what you've learned in the lessons. Your completed project will become part of a career portfolio that will demonstrate your acquired skills from the Data Science for Business Leaders Executive Program.

Program Information

ESTIMATED TIME TO COMPLETE

10 weeks at 10 hours/week

LEVEL

Practitioner

PREREQUISITES

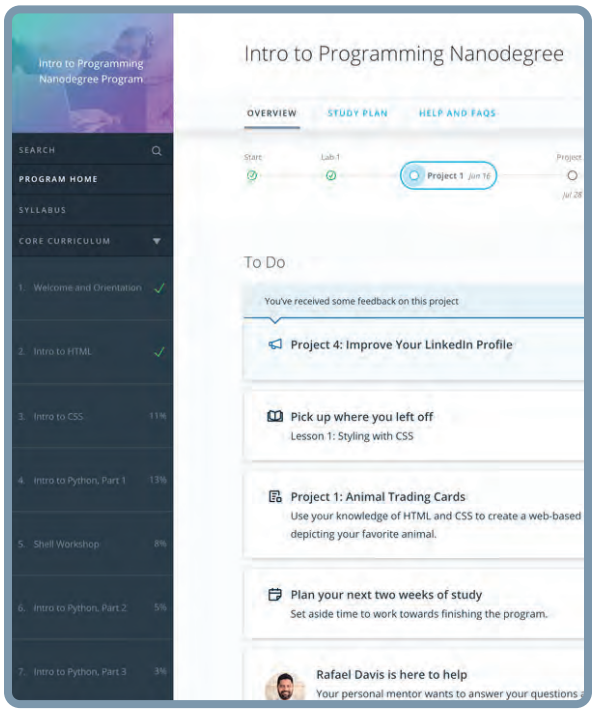
- Have spent time in a business setting, had exposure to business decision making, and have potentially worked on technical or IT projects
- Basic knowledge of mathmatics (Algebra, Geometry, etc.)
- Basic Statistics (able to calculate the mean, median, and mode from a data set)
- Prior exposure to statistics and probability in an academic or professional setting

HARDWARE/SOFTWARE REQUIRED

- Jupyter Notebook
- Google Sheets, Slides and Forms

LEARN MORE ABOUT THIS PROFESSIONAL PROGRAM:

Contact us at enterpriseNDs@udacity.com.



REAL-WORLD PROJECTS

Learners build new skills through industry-relevant projects and receive personalized feedback from our network of 900+ project reviewers. Our simple user interface makes it easy to submit projects as often as needed and receive unlimited feedback.

KNOWLEDGE

Answers to most questions can be found with Knowledge, our proprietary wiki. Learners can search questions asked by others and discover in real-time how to solve challenges.

LEARNER HUB

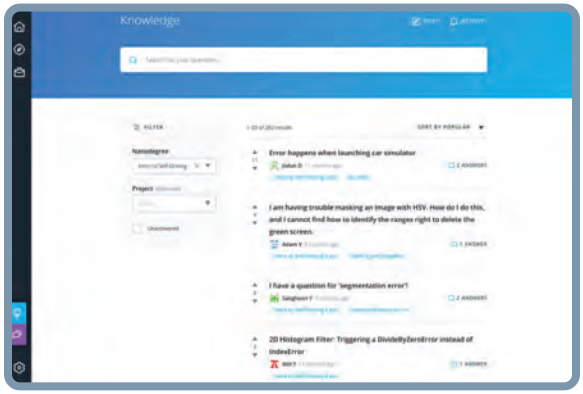
Learners leverage the power of community through a simple, yet powerful chat interface built within the classroom. Learner Hub connects learners with their technical mentor and fellow learners.

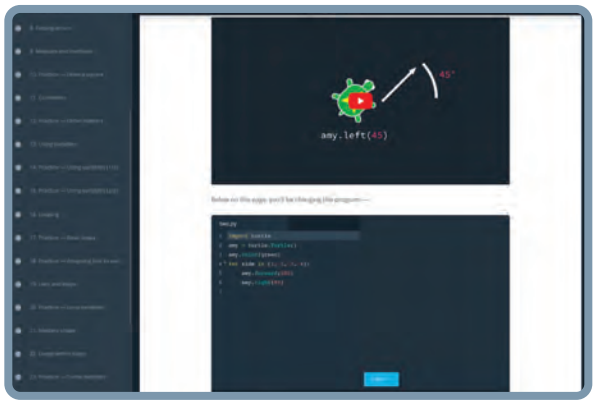
WORKSPACES

Learners can check the output and quality of their code by testing it on interactive workspaces that are integrated into the classroom.

QUIZZES

Understanding concepts learned during lessons is made simple with auto-graded quizzes. Learners can easily go back and brush up on concepts at anytime during the course.





CUSTOM STUDY PLANS

Mentors create a custom study plan tailored to learners' needs. This plan keeps track of progress toward learner goals.

PROGRESS TRACKER

Personalized milestone reminders help learners stay on track and focused as they work to complete their Nanodegree program.

Learn with the Best

Ed Wiley

INSTRUCTOR

Mr. Wiley has over 20 years of experience building, leading, and advising world-class machine learning, AI, and data science teams at companies at stages from startup to Fortune 50, holding titles such as CIO, CTO, and Chief Data Scientist.

Course: Data Science for Business Leaders

Data science is seeing widespread adoption in business today. A 2020 survey by the analyst firm Cognilytica revealed that nearly 90% of respondents indicated that they will have some sort of in-progress AI implementation within the next two years. That said, knowing how to implement data science is critical; according to McKinsey, 86 percent of executives say their organizations have been at best only somewhat effective at meeting the primary objective of their data and analytics programs, including more than one-quarter who say they've been ineffective.

The goal of the Data Science for Business Leaders Executive Program is to equip learners with the understanding of strategic, human capital, and technical requirements that power the ability of data science to deliver enhanced business outcomes, as well as the strategic execution skills to develop an organizational data science strategy that unlocks this potential. This program focuses on the unique knowledge and skills that business leaders need to unlock the value of data in their organizations, or enable a more datadriven department/organization that leverages data to inform strategic decisions for business operational improvement and growth.

This course consists of four lessons that together cover data science and its business case as well as the processes, people, and platforms necessary to execute data science initiatives for the business. Businesses often suspect that they want Data Science capabilities, and may even sense a need for Data Science capabilities...but many are not sure where to start. What is Data Science? Who is a Data Scientist? What is possible through Data Science? All these questions are addressed in Lesson 1, which provides a broad introduction to Data Science and what it can do for a business.

Creating a data science strategy isn't a standalone activity; it must be driven by your overarching business operations and strategy. Therefore, a critical starting point for any data strategy is articulation of a business's strategic objectives and identification of opportunities for data science-based transformation. These are the topics of the second lesson of
the course.

Nanodegree Program Overview

The human capital component of Data Science is critical to delivering on a data science strategy. Who do we recruit, hire, and train for our Data Science organization? How is that organization structured in order to deliver value to our business? How do our Data Scientists carry out their work in a structured manner? How do we leverage data and data science to foster a data-driven culture throughout the business? These questions are addressed in the third lesson of the course.

Finally, executing the Data Science strategy requires technology -- technology for data and technology for machine learning. Technology needs are specific to each business; they depend on the types of data to be leveraged for Data Science, the form and magnitude of that data, the types of data science models that a business plans to create, and the overall scale of operations represented by those data science models. The fourth lesson covers in great detail the parameters that must be considered both in creating a Data and Data Architecture Strategy, and in building a Machine Learning Architecture to support Data Science initiatives.

Capstone Project: 100-Day Data Science Plan

Upon assuming a new leadership role within a company (whether from an internal move or joining the company anew), it is common for an executive to be asked to prepare a plan for their first 100 days in the job. The Capstone Project asks students to prepare that 100- day data science plan for a company of their choosing; this could be the student's current company, some other existing company, or a fictitious business context provided.

As part of this project, the student will build/create the following:

- The Human Capital plan for their data science organization
- The Technical plan for their data science organization
  - Data and Data Architecture Strategy
  - Machine Learning Architecture
- Identification of six data science opportunities for the organization
  - Rack and stack evaluation of these opportunities
  - Detail the risks, challenges, and key factors for success for each of these opportunities
- Roadmap for executing these six data science opportunities.

The work product for this Capstone project will be a detailed presentation to the CEO, detailing your plan and the rationale behind your decisions.

Nanodegree Program Overview

LESSON TITLE	LEARNING OUTCOME
INTRODUCTION TO DATA SCIENCE	• Classify data science projects in terms of Area, Approach, and Type =of Model • For a given Area, Approach, and Model Type, provide one example project from your business • Given the particulars of a data science project, identify areas of concern that might lead to the projects failing. • Given the particulars of a data science project, identify steps that could be taken to help ensure the project succeeds
BUSINESS CASE FOR DATA SCIENCE	• Define an organization's data science roadmap • Identify the best projects(s) to start with • Detail strategies for successfully launching data science initiatives • Determine a starting point -- the most appropriate first project (or suite of projects) to capture the most promising opportunities and launch the data science function with adequate momentum to ensure its long-term operation within the organization. • Work with fellow executives to set and manage reasonable expectations of success for data science projects • Given a set of candidate data science projects, determine the relative strategic importance, cost, complexity of implementation, risk, likelihood of value capture, and magnitude of benefit for each of the five projects • For any data science project, identify strategies for meeting three key factors of success (executive sponsorship; strategic alignment with core business interests; scope conditions)
HUMAN CAPITAL OF DATA SCIENCE	• Use the Data Science Heat Map as a tool for specifying roles within the Data Science organization • Manage Data Science operations using structured processes for work and communication • Given the particulars of a company's strategic and operating contexts, identify the data science organizational model best suited for that company.

Nanodegree Program Overview

LESSON TITLE	LEARNING OUTCOME
HUMAN CAPITAL OF DATA SCIENCE (CONT.)	• Given a data science strategy, identify and prioritize the mix of roles you would pursue to build out the data science organization. • Describe the project and product management strategies best suited for a given company's data science organizations • Given a broad business challenge, describe how you would approach the development of a data science strategy using the Structured Problem Solving Method. • Given a business context, identify strategies for promoting a data-driven culture throughout that business, particularly, around guiding employees on how to think through breaking down problems of identifying data consumers, data needs/use cases, data sources, and related necessary pipeline/transformations that need to happen
DATA AND MACHINE LEARNING INFRASTRUCTURE STRATEGY	• Given a particular business context, prepare a detailed Data and Data Architecture strategy • Given a particular business context, detail how a Machine Learning Architecture strategy fits into its Data and Data Architecture strategy. • Identify the strengths and weaknesses of a given business's Data and Data Architecture strategy

Our Nanodegree Programs Include:

Pre-Assessments

Our in-depth workforce assessments identify your team's current level of knowledge in key areas. Results are used to generate custom learning paths designed to equip your workforce with the most applicable skill sets.

Dashboard & Progress Reports

Our interactive dashboard (enterprise management console) allows administrators to manage employee onboarding, track course progress, perform bulk enrollments and more.

Industry Validation & Reviews

Learners' progress and subject knowledge is tested and validated by industry experts and leaders from our advisory board. These in-depth reviews ensure your teams have achieved competency.

Real World Hands-on Projects

Through a series of rigorous, real-world projects, your employees learn and apply new techniques, analyze results, and produce actionable insights. Project portfolios demonstrate learners' growing proficiency and subject mastery.

Real-life Reviewers for Real-life Projects

Real-world projects are at the core of our Nanodegree programs because hands-on learning is the best way to master a new skill. Receiving relevant feedback from an industry expert is a critical part of that learning process, and infinitely more useful than that from peers or automated grading systems. Udacity has a network of over 900 experienced project reviewers who provide personalized and timely feedback to help all learners succeed.

Vaibhav
UDACITY LEARNER

"I never felt overwhelmed while pursuing the Nanodegree program due to the valuable support of the reviewers, and now I am more confident in converting my ideas to reality."

now at
CODING VISIONS INFOTECH

All Learners Benefit From:

- Line-by-line feedback for coding projects
- Industry tips and best practices
- Advice on additional resources to research
- Unlimited submissions and feedback loops

How it Works

Real-world projects are integrated within the classroom experience, making for a seamless review process flow.

- Go through the lessons and work on the projects that follow
- Get help from your technical mentor, if needed
- Submit your project work
- Receive personalized feedback from the reviewer
- If the submission is not satisfactory, resubmit your project
- Continue submitting and receiving feedback from the reviewer until you successfully complete your project

About our Project Reviewers

Our expert project reviewers are evaluated against the highest standards and graded based on learners' progress. **Here's how they measure up to ensure your success.**

900+

Expert Project Reviewers

Are hand-picked to provide detailed feedback on your project submissions.

1.8M

Projects Reviewed

Our reviewers have extensive experience in guiding learners through their course projects.

3

Hours Average Turnaround

You can resubmit your project on the same day for additional feedback.

4.85 /5

Average Reviewer Rating

Our learners love the quality of the feedback they receive from our experienced reviewers.

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For more information visit: **www.udacity.com/enterprise**