UDACITY

NANODEGREE PROGRAM SYLLABUS

Applying Data Science to Product Management



Overview

Applying Data Science to Product Management is the first course in the **Data Product Manager Nanodegree program.**

Apply data science techniques to shape product strategy. Learn how to utilize SQL to extract data and Tableau to visualize market insights in order to identify new product opportunities. Begin by analyzing and calculating trends and aggregations in a dataset and enriching them for enhanced visualization. Then, interpret the visualizations to create product objectives and KPIs. Finally, combine data analysis and product goals into a cohesive, data-backed product proposal.

Prerequisites: No prior experience with data modeling & data engineering is required; however, a basic understanding of data terminology (i.e. big data, database, algorithms, etc.), some experience with data analysis (basic SQL & Tableau), and a general understanding of product management is helpful.

Educational Objectives: This Nanodegree program teaches the foundational skills all data product managers leverage, including data analysis, data visualization, and iterative design. It is ideal for product managers who want to increase their data analytics fluency and focus on managing products whose core functionality and user experience are data-driven.



Estimated Time:
1 Month at
10 hours / week



Prerequisites:
Prior Data Analysis & Product Management Experience Recommended



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: Applying Data Science to Product Management

As products become more digital, the amount of data collected is increasing. Product managers now have the opportunity to utilize this data to not only enhance existing products, but create completely new ones. Understand the role of data product managers within organizations and how they utilize robust data modeling and analysis in collaboration with data scientists to solve problems. Learn how to visualize your data with Tableau for statistical analysis and identify unique relationships between variables via hypothesis testing and modeling. Evaluate the output captured in statistical analyses and translate them into insights to inform product decisions.

Course Project
Develop a Data-Backed Product Proposal

A key responsibility of data product managers is analyzing market data to propose new product opportunities. In this project, you will apply the skills acquired in this course to create the MVP launch strategy for the first flying car taxi service, Flyber, in one of the most congested cities in America -- New York City. Your team acquired taxi data for a comparable initial analysis. The dataset contains real taxi drop-offs and pick-ups in New York City. First, you will analyze the existing use cases for and identify temporal, behavioral, and spatial trends of ground-based taxis from the dataset. Next, you will deep-dive into user research data, to understand the general sentiment, desire, concerns, and use cases of a flying cab service to prospective customers. Finally, you will synthesize your insights to create a data-backed product proposal that recommends what features the first flying taxi service should have to maximize consumer delight, adoption and profits.

	LEARNING OUTCOMES	
LESSON ONE	**Introduction to Data Product Management**	• Explain the concept and history of data product management • Distinguish the different types of data product managers • Identify the various internal stakeholders that data product managers work with • Understand the fundamentals of general product management from talking to customers, analyzing data, designing high-level solutions, prioritizing work, setting a roadmap, facilitating development, launch communications, and product iteration

LESSON TWO	**Granularity, Distribution, and Modeling Data**	• Analyze what is being measured in a dataset • Explain the benefits of aggregates or roll-up tables • Compare and contrast the differences between fact & dimensional tables • Calculate and analyze the distribution of a dataset
LESSON THREE	**Trends, Enrichment, & Visualization**	• Identify and differentiate different visualizations, and justify when to apply the right visualization for the appropriate analyses (spatial, temporal, distribution, correlation) - box plot, line chart, donut chart, density map, histogram • Implement enriching datasets, and utilize common online repositories for publicly available datasets for analysis.
LESSON FOUR	**Midterm: Develop a Data-Backed Product Proposal (Part 1)**	• Utilize SQL and other data analysis techniques to explore and enrich a dataset to identify customer pain points, trends, and opportunities
LESSON FIVE	**Setting Product Objectives & Strategy**	• Interpret data and insights to come up with product objectives • Design KPIs that measure if your products are meeting their objectives • Utilize best practices and different techniques for setting up explicit feedback mechanisms • Create experiments that generate meaningful results in a timely, resourceful manner • Drive instrumentation strategies for proper event data collection
LESSON SIX	**Proposal Synthesis & Design**	• Assemble & arrange your narrative based on stakeholders • Weave data visualizations and insights into presentations in a consumable format • Develop the key points to hit in a product proposal presentation

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Data Product Manager Nanodegree Program

Why should you take this program?
All products developed for today's market are data products - running on data-derived insights to provide the right experience, to the right user, at the right time. Companies like Amazon, Netflix, Google, and more are able to provide personalized and engaging experiences to users because they utilize data science, machine learning, and artificial intelligence to better meet user needs. Be equipped to build products that leverage data to position customers and businesses to thrive.

Get **30% off** Course 1 today & unlock 30% off the **full Nanodegree program!**

COURSE 1



Applying Data Science to Product Management

Taught by JJ Miclat, Product Manager at Zendesk

Project 1: Develop a Data-Backed Product Proposal

Hone specialized skills in Data Product Management and learn how to model data, identify trends in data, and leverage those insights to develop data-backed product strategy.

Any progress made in this course can be applied towards graduation from the full Data Product Manager Nanodegree program.

COURSE 2

Establishing Data Infrastructure

Taught by Vaishali Agarwal, Product Manager at Expedia

Project 2: Build a Scalable Data Strategy

Master the nuances of evaluating strategic decisions for data pipeline technology, including security and compliance, that enable the desired data collections processes of a product. Influence the product data flows and transformations to support robust statistical analysis.

COURSE 3

Leveraging Data in Iterative Product Design

Taught by Anne Rynearson, Product Manager at DISQO

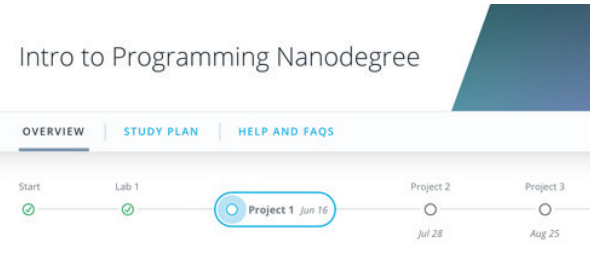
Project 3: Create an Iterative Design Path

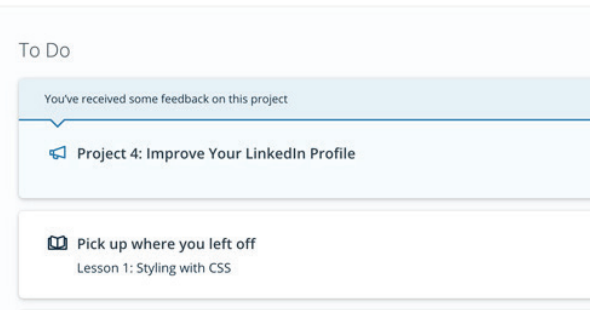
Learn how to adapt your products to market changes over time and refine them based on user feedback. Understand how to enhance products by gathering user data from a variety of sources, build user personas, and extract insights from user journey maps to define KPIs.

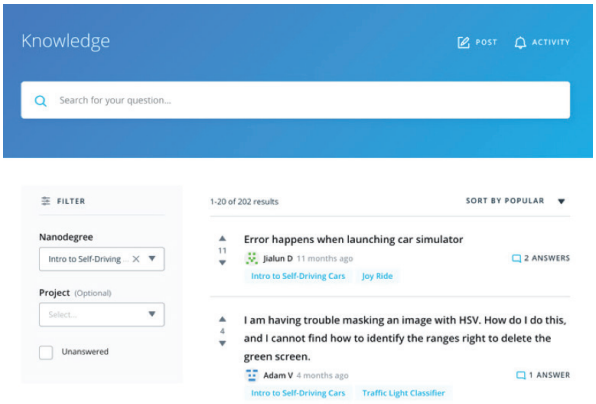
Get early access to Course 1 now, and unlock **30% off** the full Data Product Manager Nanodegree program!

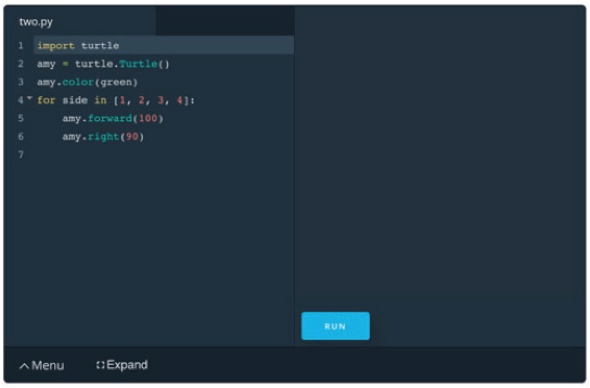
Leverage data to build products that deliver the right experiences, to the right users, at the right time. Lead the development of data-driven products that position businesses to win in their market.

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 your fellow students in your Executive Program.

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



JJ Miclat

SR. PRODUCT MANAGER
AT ZENDESK

JJ is a product leader obsessed with creating simple, novel solutions for the world's most challenging issues. He's sunk his teeth into analytics & data product management for Beats Music, Apple, VSCO, & Collective Health.





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 COACHING

- Personal assistance in your job search
- Monthly 1-on-1 calls
- Personalized feedback and career guidance
- Interview preparation
- Resume services
- Github portfolio review
- LinkedIn profile optimization

Frequently Asked Questions

PROGRAM OVERVIEW



WHY SHOULD I ENROLL?

Product Manager is a top 5 job on LinkedIn's Most Promising Jobs for 2019, and one of the most coveted roles in large tech enterprises, as well as entrepreneurial startups. All products developed for today's market are data products - running on data-derived insights to provide the right experience, to the right user, at the right time. Companies like Amazon, Netflix, Google, and more are able to provide personalized and engaging experiences to users because they utilize data science, machine learning, and artificial intelligence to better meet user needs.

In the Data Product Manager Nanodegree program, you will hone specialized skills in Product Management, a role with a starting base salary of $125,000 and be equipped to build products that leverage data to position customers and businesses to thrive. This program is designed for students who want to assume key leadership roles in data product development and strategy in their company.

Leverage market data to amplify product development. Learn how to apply data science techniques, data engineering processes, and market experimentation tests to deliver customized product experiences. Begin by leveraging the power of SQL and Tableau to inform product strategy. Then, develop data pipelines and warehousing strategies that prepare data collected from a product for robust analysis. Finally, learn techniques for evaluating the data from live products, including how to design and execute various A/B and multivariate tests to shape the next iteration of a product.

WHAT JOBS WILL THIS PROGRAM PREPARE ME FOR?

This program will equip you with the skills to assume data product manager roles. You'll learn directly from experienced Product Managers at Zendesk, Expedia, and DISQO, who have constructed this Nanodegree program to equip you with the most in-demand and relevant industry skills.

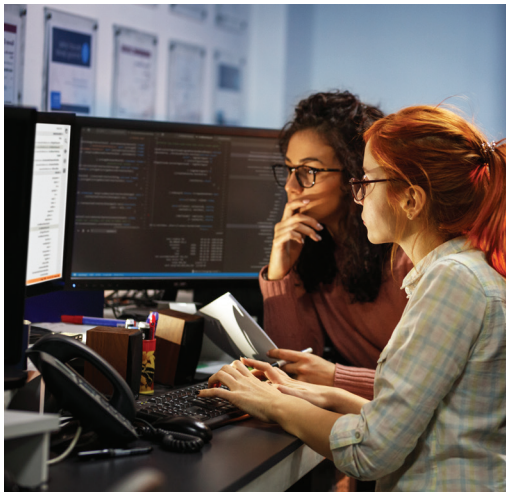
HOW DO I KNOW IF THIS PROGRAM IS RIGHT FOR ME?

This Nanodegree program is perfect for existing Product Managers, Data Science professionals, and Engineers who are already in data or product-focused roles and want to further their skillset, as well as those who wish to break into the data product domain and help build products that utilize data to provide better product experiences.

In most of the digital products, data is used to enhance product lines, better meet customer needs, make products that customers actually want, or create for a more personalized experience. Data that are collected from a product can be fed into machine learning algorithms and used to improve the overall user journey. If you want to build data-driven products backed by scalable data strategies to deliver the right experience to the right users, at the right time,

FAQs Continued

then this Nanodegree program is right for you.



WHAT IS A COURSE? HOW IS IT DIFFERENT FROM A NANODEGREE PROGRAM?

Udacity's Nanodegree programs are comprised of a series of courses. Each course is a distinct unit of learning, typically ending in a project where students demonstrate mastery of the skills covered. The Data Product Manager Nanodegree Program consists of three courses, outlined in the above syllabus. With the Applying Data Science to Product Management Course, you are getting early access to the first course in the Data Product Manager Nanodegree program.

Students who enroll in a paid course will receive all the same support and services as students in Udacity's Nanodegree programs. The main difference is that a course is a smaller unit of material - a typical Nanodegree program is comprised of 3 or 4 courses.

Every course includes career services including a personal career coach, project reviews from industry professionals, technical mentor support so you can get help when you need it, and a flexible learning plan so you can learn at your own pace.

HOW DO I GET 30% OFF THE DATA PRODUCT MANAGER NANODEGREE PROGRAM?

The Data Product Manager Nanodegree program is one of the first times Udacity has ever offered early access to a Nanodegree program by way of access to individual courses, so get a headstart on your Product Management toolkit today! The options for enrollment are:

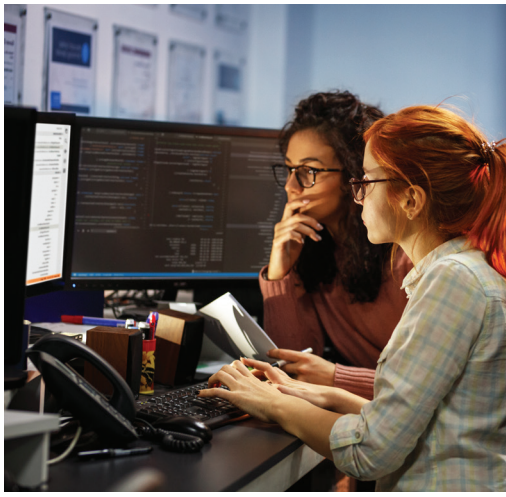
Option 1) Enroll today in Course 1, Applying Data Science to Product Management, at 30% off, AND unlock 30% off the Data Product Manager Nanodegree program when it's available. Any progress you make in the course will transfer over into the Nanodegree program!

Option 2) Wait until Fall 2020 and enroll in the complete Data Product Manager Nanodegree Program at full price.

Please note that the following terms apply: Students who enroll in the Applying Data Science to Product Management Course will be eligible for 30% off each month of a monthly subscription to the Data Product Manager Nanodegree Program. Eligible students will automatically receive tvhis offer via email when the Data Product Manager Nanodegree program is available. This discount may not be transferred to a different Nanodegree program or to another student, and may not be combined with other offers or redeemed for cash. Limitations apply. These terms are subject to change without notice.

FAQs Continued

WHAT IS THE DIFFERENCE BETWEEN THE PRODUCT MANAGER, THE GROWTH PRODUCT MANAGER, THE DATA PRODUCT MANAGER, AND THE AI PRODUCT MANAGER NANODEGREE PROGRAMS?



The **Product Manager Nanodegree** program will equip you with the foundational skills to assume entry-level product manager roles. You'll learn directly from experienced Product Managers at Uber and Google, who have constructed this Nanodegree program to equip you with the most in-demand and relevant industry skills. This Nanodegree program teaches the core skill set required in all Product Manager roles, which is the foundation for more specialized roles like Growth Product Manager, Data Product Manager, AI Product Manager, and more.

The **AI Product Manager Nanodegree** program is meant for product managers that are responsible for building and deploying AI products. The AI PM Nanodegree program is focused on the hands-on tasks of scoping a data set, training a model, and evaluating the performance of the model.

The **Growth Product Manager Nanodegree program** is meant for experienced Product Managers who are looking to specialize their skills in product management and be equipped to fill growth-focused roles. You'll learn how to grow the user base of your product, get customers engaged and activated as quickly as possible, and monetize your product to have it generate revenue.

The **Data Product Manager Nanodegree program** is meant for experienced Product Managers who are looking to specialize their skills in product management and be equipped to fill data-focused roles in the development and strategy behind data products. You'll learn how to build an MVP launch strategy for a new service product that utilizes market insights extracted from extensive data analyses and visualizations, develop a data model with corresponding data pipelines and transformations to evaluate user activity of a product, and identify key behavioral and descriptive attributes of users to construct hypotheses for new product features and experiments to validate these hypotheses.

ENROLLMENT AND ADMISSION

DO I NEED TO APPLY? WHAT ARE THE ADMISSION CRITERIA?

There is no application. This Nanodegree program accepts everyone, regardless of experience and specific background.

WHAT ARE THE PREREQUISITES FOR ENROLLMENT?

No prior experience with data modeling & data engineering is required. However, a basic understanding of data terminology (i.e. big data, database, algorithms, etc.), some experience with data analysis (basic SQL & Tableau), and a general understanding of product management is helpful.

Frequently Asked Questions



IF I DO NOT MEET THE REQUIREMENTS TO ENROLL, WHAT SHOULD I DO?

The following Nanodegree programs are not necessary to complete before starting this program, but could be helpful if you would like to prepare.

You can check out the **Product Manager Nanodegree program**, **SQL Nanodegree program**, or the Programming for **Data Science with Python Nanodegree program**.

TUITION AND TERM OF PROGRAM

HOW IS THIS NANODEGREE PROGRAM STRUCTURED?

The Data Product Manager Nanodegree program is comprised of content and curriculum to support three projects. Once you subscribe to a Nanodegree program, you will have access to the content and services for the length of time specified by your subscription. We estimate that students can complete the program in three 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.

HOW LONG IS COURSE 1?

The Applying Data Science to Product Management Course, the first course in the Data Product Manager Nanodegree program, is comprised of content and curriculum to support one project. Once you subscribe to a course, you will have access to the content and services for the length of time specified by your subscription. We estimate that students can complete each course in one (1) month, 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.

CAN I SWITCH MY START DATE? CAN I GET A REFUND?

Please see the Udacity Nanodegree program **FAQs** for policies on enrollment in our programs.

Frequently Asked Questions

SOFTWARE AND HARDWARE



WHAT SOFTWARE AND VERSIONS WILL I NEED IN THIS PROGRAM?
You will need to use SQL, Tableau, Google Slides or Microsoft PowerPoint, and Google Sheets or Microsoft Excel, as well as have access to the internet and a 64-bit computer. You will also need access to a computer for which the requirements are:

Minimum browser requirements are:
Chrome 49+
Firefox 57+
Safari 10.1+ (Apple - macOS)
Edge 14+ (Windows)

Minimum operating system (OS) requirements are:
Windows 8.1 or later
Apple MacOS 10.10 (Yosemite) and later
Any Linux OS that supports the browsers mentioned above
Any Chrome OS that supports the browsers mentioned above