Data Science Immersive

Overview

General Assembly's Data Science Immersive is a full-time career accelerator that's designed to transform students from novices into job-ready candidates.

As a graduate, you'll leave poised to succeed in a variety of data roles, creating predictive models that drive decision-making and strategy throughout organizations of all kinds.

Throughout the expert-designed course, you'll:

- Collect, extract, query, clean, and aggregate data for analysis.
- Perform visual and statistical analysis on data using UNIX, Git, SQL, Python, and its associated libraries and tools.
- Build and implement appropriate machine learning models and algorithms to evaluate data science problems spanning finance, public policy, and more.
- Craft and share compelling narratives through data visualization.
- Compile clear stakeholder reports to communicate the nuances of your analyses.
- Identify big data problems and articulate how distributed systems and parallel computing technologies solve these challenges.
- Apply question, modeling, and validation problem-solving processes to data sets from various industries to provide insight into real-world problems and solutions.

Embark on a New Career Path

Get the training and support you need to execute a successful job search. Working one on one with career coaches, you'll:

- Compile a professional portfolio of exploratory data analyses and predictive models to demonstrate hireability and job-ready skills to potential employers and collaborators.
- Impress hiring managers with your data science acumen. Prepare to ace technical interviews with resume reviews, mock interviews, and whiteboarding challenges.
- Access ongoing networking opportunities to connect with experts, employers, and potential collaborators around the world.
- Navigate your personal job search experience, from technical challenges, to salary negotiation, and more.

What To Expect

Pre-Course Learning Paths

Set yourself up for success in this Immersive with up to 25 hours of preparatory lessons covering essential concepts in Python programming and applied math, including statistics, developer tools, and data visualization. Tailored to introduce you to foundational data skills and context, Data Science Fundamentals is a self-paced online learning path designed to help you hit the ground running on day one of class.

The In-Class Experience

Engage in full-time, project-based learning that's designed to inspire a lifetime of discovery. As a DSI student, you'll:

- Explore new concepts and tools through expert-led lectures and discussions.

- Complete hands-on analytical and programming exercises to reinforce newly learned skills.

- Develop fluency in industry-essential topics and techniques via independent, pair, and group labs and real-world client work.

- Receive individualized feedback and support from your expert instructional team.

- Build out a professional portfolio to showcase your job-ready data science skills to potential employers and collaborators.

Dedicated Career Coaching

As an Immersive student, you'll receive dedicated support from career coaches who will help you set goals, make a roadmap for success, and stay on track with your job search. Throughout the course, you'll:

- Hear from guest speakers, engage in real client work, and participate in workshops to prepare you for a role in a new industry.

- Cultivate a competitive mindset, learning to assess your skill set against job descriptions, track progress, and recognize opportunities.

- Develop your professional brand: Compile a compelling portfolio, polish your online and in-person presence, and practice technical challenges and whiteboarding skills to set yourself apart in interviews.

- Tap into an exclusive global network of experts, influencers, and peers, plus learn strategies for leveraging your existing connections, in person and online.

- Become an active contributor to the data science community, sharing your work through online discussions and in-person meetups.

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After graduation, you'll also gain access to resources to help fuel a lifetime of learning. Dive into new topics or continue honing your data science skills with discounts on a suite of tools, passes and packages to premier events, and more. You can also apply tuition discounts to future GA courses, classes, and workshops, both on campus and online.

General Assembly's Connected Classroom

Experience the best of online and in-person education in our Connected Classroom. Our innovative format seamlessly blends instruction, technology, and collaboration into a proven approach to career transformation, preparing students to succeed on the job.

- Learn from GA's top instructors from around the globe as they broadcast in real time.

- Get in-person, individualized training and support from local pros.

- Collaborate and connect with a network of alumni and peers with diverse professional backgrounds across major cities.
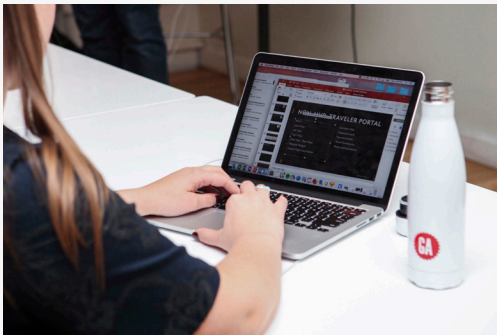
What You'll Learn

Pre-Work **Data Science Fundamentals**

Learn online, and explore the essentials of Python for data science and applied math through a series of self-paced, preparatory lessons.

- Define basic Python programming concepts and data types, including variables, lists, dictionaries, loops, and functions.
- Create functions that accept multiple arguments and return multiple values.
- Understand the purpose of iterators and list comprehensions in real-world data science workflows.
- Describe the use and purpose of DataFrames and how they can be used to manipulate data with Pandas.
- Plot visualizations with Matplotlib and Seaborn.
- Get acquainted descriptive and inferential statistics and how to calculate them.
- Calculate combinations and permutations.
- Explore significance testing and calculate confidence intervals.
- Calculate linear algebra and regression equations.

Unit 1 **Fundamentals**

Get acquainted with essential data science tools and techniques, working in a programming environment to gather, organize, and share projects and data with Git and UNIX.

- Demonstrate familiarity with introductory programming concepts using Python and NumPy to navigate data sources and collections.
- Utilize UNIX commands to navigate file systems and modify files.
- Learn to track changes and iterations using Git version control from your terminal.
- Define and apply descriptive statistical fundamentals to sample data sets.
- Practice plotting and visualizing data using Python libraries like Matplotlib and Seaborn.

Project: Apply NumPy and Python programming skills to answer questions based on a clean data set.

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Unit 2	Exploratory Data Analysis

Perform exploratory data analysis. Generate visual and statistical analyses, using Python and its associated libraries and tools to approach problems in fields like finance, marketing, and public policy.

- Design an experimental study with a well-thought-out problem statement and data framework. Use Pandas to read, clean, parse, and plot data, extracting and rearranging data through indexing, grouping, and JOINing.
- Review statistical testing concepts (p values, confidence intervals, lambda functions, correlation/causation) with SciPy and StatsModels.
- Learn to scrape website data using popular scraping tools.
- Explore bootstrapping, resampling and building inferences about your data.

Project: Leverage Pandas to apply advanced NumPy and Python skills cleaning, analyzing, and testing data from multiple messy data sets.

Unit 3	Classical Statistical Modeling

Explore effective study design and model evaluation and optimization, implementing linear and logistic regression and classification models. Collect and connect external data to add nuance to your models using web scraping and APIs.

- Use scikit-learn and StatsModels to run linear and logistic regression models and learn to evaluate model fit.
- Begin to look at classification models by implementing the k-nearest neighbors (kNN) algorithm.
- Articulate the bias-variance trade-off as you practice evaluating classical statistical models.
- Use feature selection to deepen your knowledge of study design and model evaluation.
- Learn to apply optimization and regularization for fitting and tuning models.
- Dive into the math and theory behind how gradient descent helps to optimize loss functions for machine learning models.

Project: Explore, clean, and model data based on a provided data set, outlining your strategy and explaining your results.

Data Science Immersive: What You'll Learn

Unit 4   **Machine Learning Models**

Build machine learning models. Explore the differences between supervised and unsupervised learning via clustering, natural language processing, and neural networks.

- Define clustering and its advantages and disadvantages as compared to classification models.
- Build and evaluate ensemble models using decision trees, random forests, bagging, and boosting.
- Get acquainted with natural language processing (NLP) through sentiment analysis of scraped website data.
- Learn how Naive Bayes can simplify the process of analyzing data for supervised learning algorithms.
- Explore the history and use of Hadoop, as well as the advantages and disadvantages of using parallel or distributed systems to store, access, and analyze big data.
- Understand how Hive interacts with Hadoop and discover Spark's advantages through big data case studies.
- Analyze and model time series data using the ARIMA model.

Project: Scrape and model your own data using multiple methods, outlining your approach and evaluating any risks or limitations.

Unit 5   **Advanced Topics and Trends**

Dive deeper into recommender systems, neural networks, and computer vision models, implementing what you've learned to productize models.

- Compare and contrast different types of neural networks and demonstrate how they are fit with back propagation.
- Build and apply basic recommender systems in order to predict on sample user data.
- Work with career coaches to create and polish your professional portfolio.
- Practice with data science case studies to prepare for job interviews.

Project: Choose a data set to explore and model, providing detailed notebook of your technical approach and a public presentation on your findings.

Frequently Asked Questions

Why is this course relevant today?

Individuals and organizations of all stripes leverage data to take on today's biggest challenges, tackling everything from public policy and robotics to dating and eCommerce. As a result, organizations are moving quickly to build robust in-house data teams and get ahead in this evolving industry — and there's not enough talent to go around. According to Forbes, "More than 150 zettabytes (150 trillion gigabytes) of data will need analysis by 2025." Bridge this gap, and unlock a world of opportunity.

What practical skill sets can I expect to have after completing this course?

By the end of our Data Science Immersive, you will be able to:
- Perform visual and statistical analysis on data using Python and its associated libraries and tools.
- Build, implement, and evaluate data science problems using machine learning models and algorithms.
- Communicate findings through data visualization, creating clear and reproducible reports to stakeholders.
- Identify big data problems and articulate how distributed systems and parallel computing technologies are solving these challenges.
- Apply question, modeling, and validation problem-solving processes to data sets from various industries to provide insight into real-world problems and solutions.

What kind of community will I find in this course?

Our Data Science Immersive attracts eager learners who are as passionate about growing and launching a new career as you are. Their backgrounds span professions in design, product management, and many other fields. The General Assembly experience can create lasting friendships, collaborations, and professional opportunities that will support you throughout a lifetime of discovery.

What does my tuition cover?

- Expert-led instruction in data science skills, methods, and best practices.
- Design interview prep, including resume reviews, mock interviews, and whiteboarding practice.
- Dedicated career coaching to help you navigate your personal job search experience, from technical challenges, to salary negotiation, and more.
- Access ongoing networking opportunities to connect with experts, employers, and potential collaborators around the world.

What are my financing options for an Immersive course?

Financial hurdles shouldn't keep you from achieving your goals. In addition to payment plans, we offer a few different financing options so you can focus on what counts — your education — including income share agreements and other options with $0 upfront costs. We also offer tuition reimbursement and scholarships for eligible students facing barriers to enrollment, including our See Her Excel scholarship for women.

Contact Us

Connect with your local campus. Check out our Locations page to find contact information and explore events, workshops, and networking opportunities in your city.

Additional Resources

Course Application

Student Financing Details