Curriculum 2025

Data Analytics Certificate

DIGITAL WORKSHOP center

Table of Contents

WHY DWC?

$16.4K

average increase in salary of certificate program students

Why Data Analytics?

The Data Analytics Certificate at Digital Workshop Center is a comprehensive approach towards learning problem-solving techniques for analyzing large data sets. Our program teaches you how to write code in Python, implement related Python libraries, utilize artificial intelligence (AI) and machine learning, harness Excel for analysis, and visualize the results.

To become a Data Analyst, you will need a mix of software engineering, statistics, and the ability to apply both to complex situations. Alongside your instructor as your mentor, you will gain a wide array of career skills for this fast growing, high demand field that will apply for years to come.

The Data Analytics Certificate program at Digital Workshop Center takes a modern approach to teaching data analysis - one that is frequently validated by hiring managers and will leave students fully prepared to pursue a variety of data driven career paths.

PROGRAM LENGTH*

198 total hours.
66 total sessions of 3 hours each.

TARGET STUDENT

Beginner

PRE-REQUISITES

Basic Digital Literacy is required.

*Additional coursework may need to be completed outside of class time.

Possible Data Analytics Career Paths

Data Analytics has increased in value over recent years and according to recent data projections, the market for data analytics professionals is expected to grow from around $220 billion in 2023 to $401 billion by 2028.

DATA ANALYST

Skilled in data visualization and statistical analysis, data analysts collect and interpret data to answer questions, solve problems, and communicate data-driven discoveries.

BUSINESS ANALYST

Skilled in using diagnostic, predictive, and prescriptive analytics, business analysts are experts in identifying business shortcomings and opportunities and developing solutions to improve business processes and performance.

MARKETING ANALYTICS MANAGER

Bringing many analytical skills together, a marketing analytics manager is responsible for collecting, analyzing, and using data to improve the effectiveness of marketing campaigns.

DATA VISUALIZATION ENGINEER

A relatively new career, data visualizers are skilled in designing, developing, and maintaining data visualization systems to create interactive and visually appealing representations of data for quick and easy understanding of complex data sets.

Performance Based Objectives

Upon successful completion of this program, students will:

- ✓ Learn SQL and relational database concepts
- ✓ Organize and clean up data
- ✓ Program with Python
- ✓ Expand the Python language with pandas to solve complex data problems
- ✓ Examine essential statistics functions and related SPSS terminology
- ✓ Master the functions within Microsoft Excel as an analysis and reporting tool
- ✓ Dive into AI and machine learning for data analysis
- ✓ Expand your knowledge with sklearn and machine learning algorithms
- ✓ Review the importance of your portfolio and job seeking skills for this industry
- ✓ Present your final project for critique

WHY DWC?

1 on 1

career counseling and mentoring included

Curriculum

All instruction for this program is held on Zoom. You will be able to access class Zoom links through your student portal. The Data Analytics Program (Live) meets three times per week for 3 hours per session on a fixed schedule.

MODULES		HOURS*	SESSIONS
MODULE 1	SQL	18	6
MODULE 2	Fundamental Python	36	12
MODULE 3	Python Pandas data analysis & visualization	36	12
MODULE 4	Statistics and SPSS	18	6
MODULE 5	Analysis with Excel	27	9
MODULE 6	AI & Advanced Python and machine learning algorithms	45	15
MODULE 7	Portfolios & Capstone Project	18	6
Total		198	66

*All schedules are approximate and subject to change. Your instructor reserves the right to alter this calendar as circumstances may dictate.

MODULE 1 / 18 HRS / 6 SESSIONS

SQL Fundamentals and Data Retrieval

In Module 1, students get started with understanding how to retrieve data using the SQL language. Explore the basic concepts of a relational database and how to extract data from it. By the end of this module, students will have the ability to pull from a large data set and create a usable recordset of data for analysis.

- Introduction to program overview, data analytics, & SQL
- Overview and Fundamentals. Vocabulary
- Tools 101: What will be used throughout program
- Discussion of Project One. The homework for each week will allow students to generate elements of their final project. Project 1 culminates with a presentation to the class.
- Discussion of Final Project and Portfolios (Due at end of course).
- Introduction to Databases: Concepts of relational databases, tables, and schema design.
- SQL Syntax Basics: SELECT, FROM, WHERE, ORDER BY, and LIMIT for data retrieval.
- JOIN Operations: Understanding INNER JOIN to combine data from multiple tables.
- Intermediate SQL Techniques
- Advanced Data Filtering: Utilizing complex WHERE clauses, and logical operators.
- Aggregate Functions and Grouping: Employing SUM, COUNT, AVG, MIN, MAX, GROUP BY, and HAVING for data summarization.
- Subqueries and Set Operations: Introduction to nested queries, UNION, INTERSECT, and EXCEPT for advanced data retrieval and manipulation.

MODULE 2 / 36 HRS / 12 SESSIONS

Fundamental Python

In Module 2, students take a deep dive in Python and begin programming for data analysis purposes. Understanding how Python can be used for data science and analysis, visualizations, and machine learning. By the end of this module, students will be able to connect dynamic components and define powerful functions to assist with data analysis.

- Overview of Python, Setting up the Environment (ipynb and Google collab)
- Basic Syntax and Variables
- Data Types and Operators: (strings, integers, floats, booleans) and basic operators (arithmetic, assignment, comparison, logical operators).
- Conditional Statements: Using if, elif, and else for decision-making.
- Loops: for and while loops, iterating over sequences, break, continue, and pass.
- Basic Data Structures: lists, tuples, sets, and dictionaries - creation, access, and basic methods.
- Functions: Defining functions, arguments, return values, scope, and simple lambda functions.
- File Handling: Reading from and writing to files, working with file paths.
- Error and Exception Handling: Try-except blocks, handling multiple exceptions, finally clause.

MODULE 3 / 36 HRS / 12 SESSIONS

Python Pandas Data Analysis & Visualization

In Module 3, students expand on their Python skills by working with Python pandas, a powerful and dynamic data analysis tool. Adding visualizations and applying across real-world scenarios is paramount to success in data analysis careers. By the end of this module, students will have worked with Python pandas to solve complex data problems.

- Python pandas, DataFrames, series, reading and writing data
- Functions, groupby, sorting, indexing
- Exploratory Data Analysis and data cleaning: handling missing data, duplicates, filtering
- Pandas join
- Real-world application of pandas and practice EDA using real world data
- Pandas visualization
- Feature engineering: Using pandas in machine learning workflows for data pre-processing
- Creating basic plots such as histogram, scatterplot, bar charts, line graphs, and boxplot.
- Customizing graphs using matplotlib, seaborn, altair, plotly, etc. different visualization libraries.
- Real-world application of visualization

ALUMNI SUCCESS STORIES

"Look at the Digital Workshop Center to see if it provides those skills at a much more affordable cost than traditional college would. "

Kathy Bush
DWC Alum

READ TESTIMONIALS

MODULE 4 / 18 HRS / 6 SESSIONS

Statistics and SPSS

In Module 4, you will learn crucial statistics allowing you to properly interpret data distributions, variability, and trends. Improving these skills allows you to better examine data and make smarter business decisions. By the end of this module, you will have the frameworks for understanding and analyzing large data sets, recognizing patterns, and improving your

- Introduction to Statistics
- Basic Terminology: Population, Sample, Variable, Data, etc
- Descriptive Statistics: summarize and organize characteristics of a data set. e.g. Mean, Median, Mode, Range, Variance, Standard Deviation
- Inferential Statistics
- Hypothesis Testing
- Confidence Intervals
- P-Value, Probability, Random Variables
- Probability Distributions

ALUMNI SUCCESS STORIES

"That's what was great (about your instructors) because he is part of the graphic design world. His career is so vast. So we're learning technical skills, but he was also giving us a lot of real world situations..."

Michael Weaver
DWC Alum

READ TESTIMONIALS

MODULE 5 / 27 HRS / 9 SESSIONS

Analysis with Excel

In Module 5, students explore the complex data analysis tools within Microsoft Excel. On the job, Excel is still one of the most widely used tools for analysis. To be job-ready, you have to know how to examine data within the Excel environment with its own functions and features of data manipulation.

- Advanced Data Manipulation and Data Analysis and Reporting and Optimization
- Complex JOINs: Exploring LEFT, RIGHT, FULL OUTER JOINs, and self joins.
- Analytical Functions: Applying SQL functions for statistical analysis and moving averages.
- Pivot and Unpivot Operations: Techniques for data transformation and preparation for reporting.
- Data Modification: INSERT, UPDATE, DELETE
- Indexing and Query Performance: Understanding indexes, query planning, and optimization techniques.

ALUMNI SUCCESS STORIES

"And so I just think the experience all together was, I don't know, it was very nice. It was nice to be in a small space, but actually be close to people where we could talk and ask questions and provide feedback back and forth."

Clark Hoyle
DWC Alum

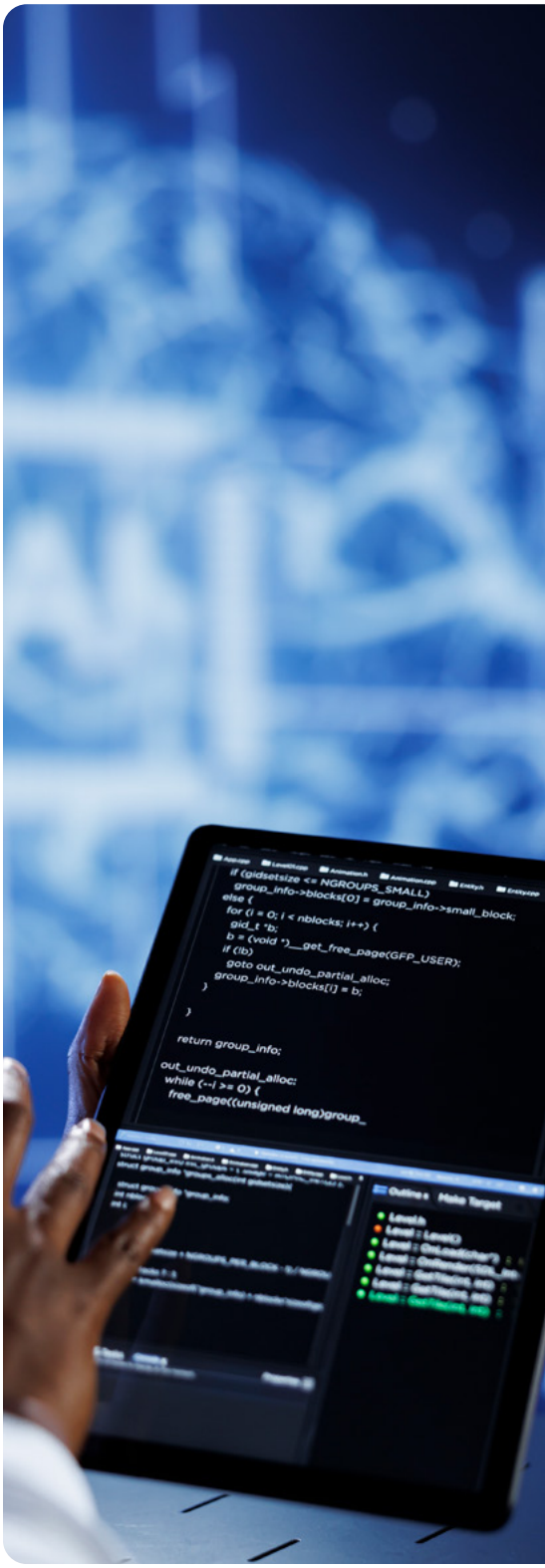
READ TESTIMONIALS

MODULE 6 / 45 HRS / 15 SESSIONS

Artificial Intelligence (AI) & Machine Learning

In Module 6, you will learn the role of AI and machine learning within the data analysis and data science worlds. Open up the power of AI to help your productivity and add high demand skills to your resume. Expand your Python libraries with sklearn to improve machine learning algorithms for classification, regression, and clustering.

- Train-test split
- Encoding
- Linear regression
- Logistic regression
- Decision tree
- Random forest tree
- Svm
- Naive Bayes
- Confusion matrix
- L1, L2 Regularization
- Gridsearch
- Cross validation
- K means clustering
- Principal component analysis (PCA)
- Bagging



MODULE 7 / 18 HRS / 6 SESSIONS

Portfolios and Capstone Project

In Module 7, students have an opportunity to put their finishing touches on their portfolio. In addition, as students begin to look after graduation and to the next step of their career path, our instructors will provide extensive mentorship on what the job market trends look like, and how to prepare to find work as a developer. At the end of this module, students will present their final Capstone project and receive critique from their peers.

- Job hunting skills
- Interview Prep
- Portfolio: further planning, review developer portfolios, critiques
- Final Project Presentations and Critique

Pace & Schedule

At Digital Workshop Center, we know that how you choose to learn is one of the key factors driving your success. Combining live online learning through Zoom and individualized support, all students have access to a personalized and mentored learning experience.

Learn online. With guidance every step of the way.

DWC students have access to career coaching, Slack channels, and team support throughout the program.

Your program will be a cohort of students, all learning to together in a live lecture format.

Length	24 weeks
Time Commitment	198 hours
Career Services Support	Yes
1:1 With Instructors	Yes
Live Lectures	Yes
Assigned Cohort	Yes

Why Digital Workshop Center?

Established in 2006, Digital Workshop Center is a school for tech careers focused on job skills and professional development. Our certificate programs are delivered in an online, bootcamp format with live instruction. DWC is an alternative option for nontraditional students and the professional workforce.

WE OFFER SCHOLARSHIPS

You may only apply for one of the following scholarships:

Tech Skills Scholarship
For unemployed, dislocated workers, or those looking to up-skill, re-skill, or add new skills

Women and Tech Scholarship
For women looking to re-skill, up-skill or add new skills in a technology career

Veterans Tech Skills Scholarship
For active or retired military service members and their families

LEARN MORE

WHERE OUR GRADS HAVE BEEN HIRED

Allstate. BROADCOM COLORADO STATE UNIVERSITY charles SCHWAB NHL

Target United Way VAIL RESORTS Walmart waterpik

Ready to Transform Your Career in Just 3 Simple Steps?

STEP 1

Talk to an Advisor

Schedule a quick 15-minute meeting with a student advisor. Ask questions about the enrollment process, tuition, schedules & more.

SCHEDULE MEETING

STEP 2

Discover the Digital Workshop Center Difference

Experience our unique approach before you commit. Attend our mandatory program orientation to get a feel for our hands-on, practical teaching style.

LEARN MORE

STEP 3

Easy Enrollment

Begin your journey effortlessly with our straightforward online application. It's fast, easy, and your first step towards a brighter future.

APPLY NOW

Contact Us

Phone: 970-908-8091
Email: info@digitalworkshopcenter.com

Have Questions?

Have questions about our programs? Reach out to our admissions team for more help.

CONTACT US