UNIVERSITY OF WISCONSIN extended campus

UW EXTENDED CAMPUS DATA ANALYTICS BOOT CAMP

CURRICULUM OVERVIEW

Companies today have access to more data than ever before. The problem? Finding employees who can turn that data into actionable insights that improve processes and drive company growth. University of Wisconsin (UW) Extended Campus Data Analytics Boot Camp is the solution.

This intensive 24-week online program is fast-paced and focused on the technical skills needed to solve real-world inspired data problems. Throughout the course, you will gain proficiency in numerous in-demand technologies, including Excel, Python, JavaScript, SQL Databases, Tableau, machine learning, and more.

This program is designed to give you the flexibility you need to balance your work-life schedule by providing you with the structure and support you need to be successful in achieving your career goals.

Is this Program Right for You?

Are you a creative, curious, and ambitious professional looking to join the data revolution? If so — or if any of the following describes your situation — enrolling in our program could be a smart career move:

- You are currently a professional working with data but are looking to advance your career by building technical skills.
- You are a manager or professional in a business where data can be used to boost your company's bottom line.
- You have interests in visualizing social, consumer, or popular trends.
- You are looking to enter a new field in financial services, information technology, healthcare, government, research, or media and are looking for a way to jump in.
- You are a full-time student, hungry to learn more and expand your skill set.
- You need the flexibility of at-home study.
- You have a bachelor's degree in any field or at least two years of experience in business, management, finance, statistics, or a related field.

About the
Online Data Analytics Boot Camp

The UW Extended Campus Data Analytics Boot Camp is a part-time program taking place over the course of 24 weeks. The program puts extra emphasis on project-based instruction, with the goal of creating a compelling portfolio of relevant project work by the end of the program.

The total program commitment time is 25-30 hours per week, including online sessions, homework, group projects, and self-study. You are supported in this journey by your dedicated cohort of staff, which includes Instructors, Teaching Assistants (TAs), Tutors, Student Success Teams, and Career Coaches. You will also benefit from peer-to-peer assistance throughout the program.

Advance your Skills

Throughout the program, you will gain experience with a host of tools required for roles in Data Analytics & Visualization including:

Intermediate Excel

- Pivot Tables
- VBA Scripting

Fundamental Statistics

- Modeling
- Forecasting

Python Programming

- Python 3
- NumPy
- Pandas
- Matplotlib
- API Interactions
- Web Scraping

Databases

- Postgres/pgAdmin
- MongoDB
- Extract-Transform-Load (ETL)

Front-End Web Visualization

- HTML
- CSS
- Bootstrap
- Dashboarding
- JavaScript
- Geomapping with JavaScript libraries

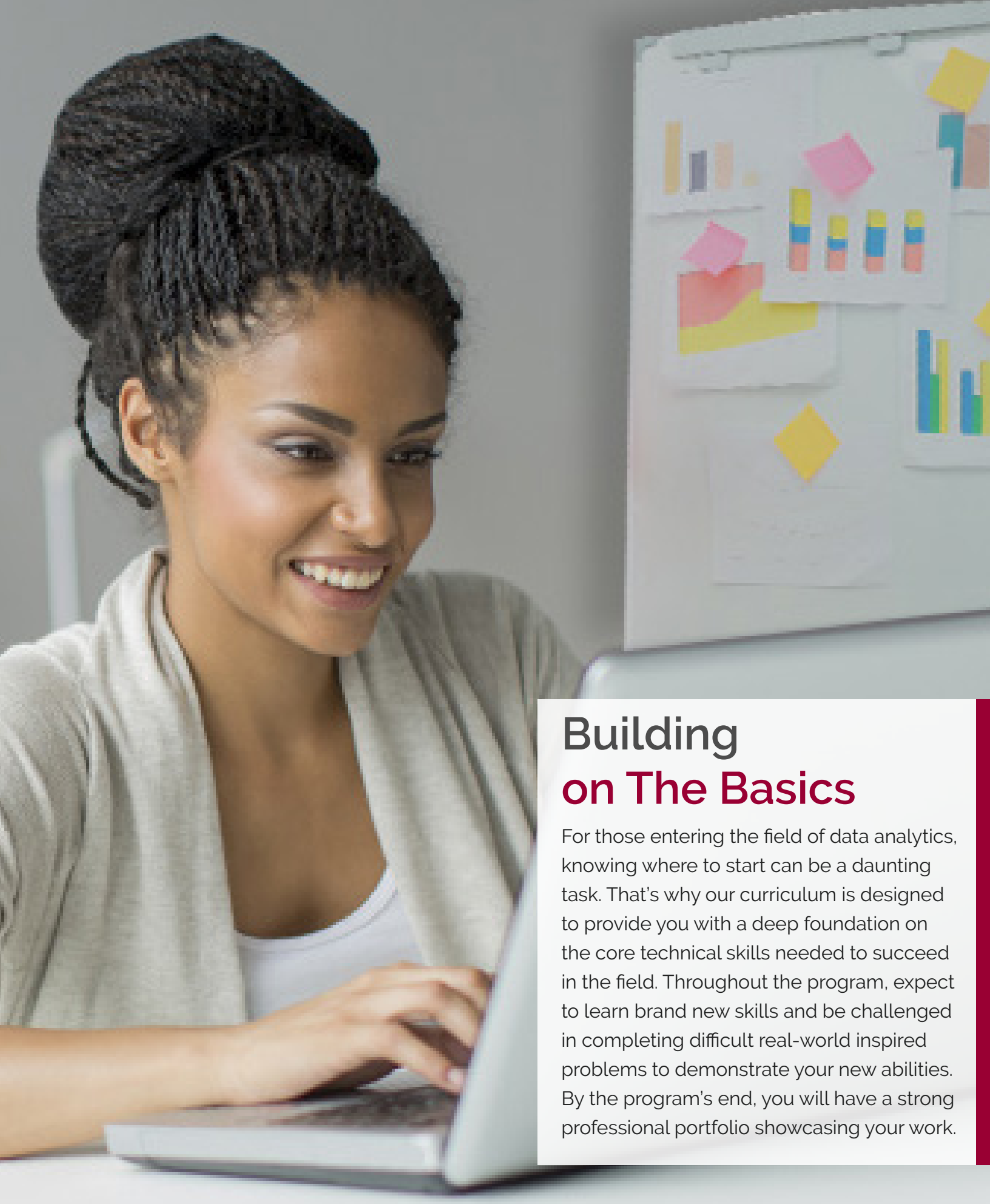
Business Intelligence Software

- Tableau

Advanced Topics

- R
- Big Data Analytics with Hadoop
- Amazon Web Services
- Machine Learning

* Note: These topics are subject to change based on local market demand and the input of hiring partners.



Building on The Basics

For those entering the field of data analytics, knowing where to start can be a daunting task. That's why our curriculum is designed to provide you with a deep foundation on the core technical skills needed to succeed in the field. Throughout the program, expect to learn brand new skills and be challenged in completing difficult real-world inspired problems to demonstrate your new abilities. By the program's end, you will have a strong professional portfolio showcasing your work.

Real Projects, Real Jobs

Those who complete the online data analytics boot camp are then qualified for many different roles, including:

- Data Analyst
- Database Administrator (Entry Level)
- Data Engineer
- Big Data Engineer (Entry Level)
- Data Scientist (Entry Level)
- Business Intelligence Analyst
- Data Journalist
- Research Analyst
- Business Analyst
- Software Engineer (Entry Level)
- SQL Developer
- Computational Scientist
- Data Architect

What You Will Learn

The UW Extended Campus Data Analytics Boot Camp is designed to teach you to:

- Employ statistical analysis to model, predict, and forecast trends
- Write SQL commands to perform Create, Read, Update, and Delete operations
- Expertly build VBA scripts in Excel to automate tedious manual processes
- Use advanced SQL and Mongo techniques to combine multiple datasets into one to create an even more comprehensive database
- Utilize real-world data sources to showcase social, financial, and political phenomena
- Create basic interactive websites and applications to show your work to the entire world
- Create Python-based scripts to automate the cleanup, re-structuring, and rendering of large, heterogeneous datasets
- Create web applications and visualize datasets through a variety of charts
- Interact with RESTful APIs using Python Requests and JSON parsing techniques
- Scrape information from web pages in order to collect data from a wide variety of online sources
- Create in-depth graphs, charts, and tables utilizing a wide-variety of data-driven programming languages and libraries
- Communicate and glean new business insights using enterprise-grade tools like Tableau
- Use geographic data to create visually exciting, interactive, and informative maps
- Work in a collaborative group on a complex data-mining project
- Build custom interactive data visualizations using JavaScript libraries
- Understand the basics of troubleshooting and enhancing legacy code

Online Course Structure

Over the course of 24 weeks, you will progress through a unique, blended experience of weekly, flexible content and live online classes led by instructors in the field. Online modules allow you to work at your own pace on real-world inspired data problems and learn from wherever you are. You will come together with peers and a dedicated instructional team in a highly-interactive live video environment to build upon these skills. These live online classes are designed to give you the support of industry professionals while working through interesting challenges and receiving real-time feedback.

Projects cover real-world data examples, ranging from visualizing bike sharing data in New York City to mapping worldwide earthquakes in real-time.

Sample Projects

Earthquake History

Data isn't just about finance and numbers. It can also be used for good as well. In this activity, you will create an interactive visualization of historic earthquakes over time using Leaflet.js, a popular JavaScript geomapping library. Your final application will provide a near-live feed of global earthquakes and their relative magnitudes.

Skills Needed:

- HTML
- CSS
- JavaScript
- Leaflet.js
- APIs
- JSON

Objectives:

- Harness the power of APIs and JSON to gather earthquake data from USGS datasets
- Utilize Leaflet.js library to create visually compelling, animated maps
- Embed the created map onto a live web page using HTML and CSS

Web Scraping Application

Sometimes, data is just out of reach. Whether it's a social media website that is guarding its information, a government agency that has poorly organized records, or a cookbook website filled with secret recipes — data isn't always accessible by external applications. This is where data scraping comes in. Utilizing Python libraries like Beautiful Soup, you will learn to convert data straight from raw HTML into a queryable and storable form, opening up troves of data for your future applications.

Skills Needed:

- Python
- Beautiful Soup
- HTML
- CSS
- MongoDB

Objectives:

- Scrape your favorite social media website for otherwise inaccessible data
- Parse through the retrieved information and store it into a MongoDB database
- Create new representations of the data using HTML and CSS

Sample Projects continued...

PyCitySchools

Data is often used to drive action. In this activity, you will analyze a school district's standardized test results over time using Python and one of its most popular analysis libraries, Pandas. Their final application will showcase trends in school performance throughout the district.

Skills Needed:

- Python
- Pandas
- Git/GitHub
- Jupyter Notebook

Objectives:

- Clean and organize your data programmatically using Python and Pandas
- Analyze your new data set through aggregation techniques and find patterns and trends worth showcasing
- Display your data live using a trending data analysis tool, Jupyter Notebooks

Course Curriculum By Module

Module	Description	What You Will Learn
Module 1: Excel Crash Course	Learn to do more with Microsoft Excel. In this module, we'll cover advanced topics like statistical modeling, forecasting and prediction, pivot tables, and VBA scripting. You'll even learn to model historic stock trends — and hopefully, learn to beat the market!	• Microsoft Excel • VBA Script • Statistics Modeling
Module 2: Python Data Analytics	Gain a strong foothold in one of today's fundamental programming languages. In this module, you'll gain deep proficiencies with core Python, data analytics tools like NumPy, Pandas, Matplotlib, and specific libraries for interacting with web data like Requests, and Beautiful Soup.	• Python • APIs • JSON • NumPy • Pandas • Matplotlib • Beautiful Soup
Module 3: Databases	Dive deep into the most prolific database languages: SQL and NoSQL. Work with Postgres/pgAdmin and MongoDB to organize data into well-structured and easily retrievable data formats.	• SQL • NoSQL • Postgres/pgAdmin • MongoDB
Module 4: Web Visualization	Building visualizations is of little benefit without a way to communicate the message. In this module, you'll learn the core technologies of web development (HTML, CSS, and JavaScript) to create new, interactive data visualizations that you can share with everyone on the web.	• HTML • CSS • JavaScript • Leaflet
Module 5: Advanced Topics	In this module, you'll be immersed in new and in-demand topics like Tableau, Hadoop, and machine learning.	• Tableau • Hadoop • Machine Learning
Module 6: Final Group Project	Bring everything that you have learned in class together to create an impressive data-visualization application with a small team. Get creative and come up with something impressive to show off to employers and managers.	• Dreaming up something fantastic and understanding the bounds of reasonable and achievable