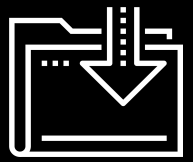
Syllabus

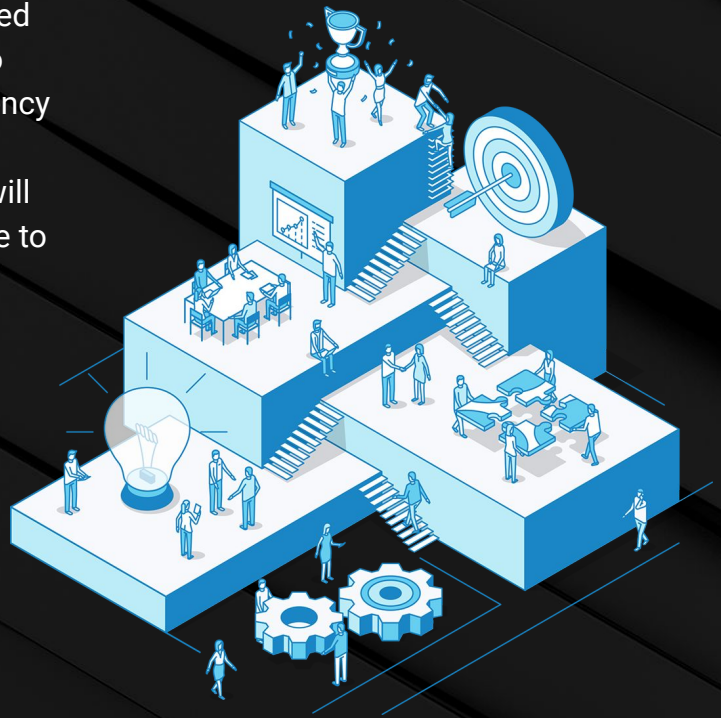
Online Data Analytics Boot Camp



Online Data Analytics Boot Camp Syllabus

Section 1: Course Overview

Welcome to Online Data Analytics! This is a rigorous and fast-paced boot camp that focuses on the practical technical skills needed to solve data problems. Throughout the course, you will gain proficiency in numerous marketable technologies, including Excel, Python, JavaScript, SQL Databases, Tableau, and more. Additionally, you will leave with an impressive professional portfolio and the confidence to succeed in a data-driven economy.



Course Outcomes

By the time you graduate, you will be able to:

- Employ statistical analysis to model, predict, and forecast trends.
- Build VBA scripts in Excel to automate tedious manual processes.
- Use real-world data sources to showcase social, financial, and political phenomena.
- Create Python-based scripts to automate the clean up, restructuring, and rendering of large, heterogeneous datasets.
- Interact with APIs using Python Requests and JSON parsing techniques.
- Generate in-depth graphs, charts, and tables using a wide variety of data-driven programming languages and libraries.
- Use geographic data to create visually exciting, interactive, and informative maps.
- Build custom interactive data visualizations using JavaScript libraries.
- Write SQL commands to perform, create, read, update, and delete (CRUD) operations.
- Use advanced SQL and Mongo techniques to combine multiple datasets into more comprehensive databases.
- Create basic interactive websites and applications to showcase your work to outside audiences.
- Construct web applications and visual datasets with a variety of charts.
- Scrape information from webpages in order to collect data from a broad range of online sources.
- Glean and communicate new business insights using enterprise-grade tools like Tableau.

Curriculum

You will begin by learning the core fundamentals of Excel and then move to more complex concepts like machine learning. The course is broken into six units organized into weekly modules. In the last five weeks of the course, you will work with a group to create an innovative portfolio project.

Unit	**Unit 1:** **Excel Crash Course** (Modules 1–2)	**Unit 2:** **Python Data Analytics** (Modules 3–6)	**Unit 3:** **Databases and Data Ethics** (Modules 7–10)	**Unit 4:** **Visualization** (Modules 11–16)	**Unit 5:** **Advanced Topics** (Modules 17–20)	**Unit 6:** **Final Project** (Modules 21–24)
Description	Enhance your Microsoft Excel skills. In this unit, we'll cover advanced topics like statistical modeling, forecasting and prediction, pivot tables, and VBA scripting. We'll also learn to model historic stock trends—and, hopefully, anticipate how to beat the market!	Gain a strong foothold in one of today's fundamental programming languages. In this unit, you'll gain deep proficiencies in core Python and data analytic tools like NumPy, Pandas, and Matplotlib.	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 formats. Learn about ethical considerations for using data including algorithmic bias and privacy.	Communicate effectively with visualizations. In this unit, you'll learn the core technologies of web development (HTML, CSS, and JavaScript) to create new, interactive data visualizations that you can share on the web.	Take your knowledge even further. By the end of the course, you'll immerse in new, in-demand topics like Tableau, Hadoop, and machine learning.	Bring it all together. For the final project, you'll create an impressive data visualization application with a small team. Get creative and come up with an innovative tool to show off to the world!
What You'll Learn	• Microsoft Excel • VBA Scripting • Statistics Modeling	• Python • APIs • JSON • NumPy • Pandas • Matplotlib	• SQL • NoSQL • Postgres/pgAdmin • MongoDB • Data Ethics	• HTML • CSS • JavaScript • Leaflet	• Tableau • Hadoop • Machine Learning	• Dreaming up something fantastic • Understanding the bounds of reasonable and achievable

Section 2: Course Structure

Learning Experience

Each week of your course is structured around a specific topic and set of skills. The course is designed to help you master those skills. Each week you will do the following:

Complete Online Lessons	Attend Virtual Classes & Office Hours	Submit Weekly Challenges
Start each week by diving into the online lessons on Bootcamp Spot. The lessons are designed to introduce you to the week's skills within a real-world context through videos, text-based readings, skill-based activities, and interactive activities.	You will have two instructor-led virtual classes each week through Zoom. These classes are designed to build on the online lessons so be sure that you have made good progress on the lessons to get the most out of these classes. In addition, you'll have opportunities to attend Office Hours led by your instructor and/or TA.	Cap the week off by demonstrating the skills you learned by submitting the Challenge assignment. Challenges are graded assignments for which you will get feedback.

Virtual Classes

During virtual classes, your instructional team will lead demonstrations, as well as guide you through independent activities and interactive group work in breakout rooms.

The work you do in your virtual classes builds on what you cover in Bootcamp Spot, so make sure to dig into the material as soon as possible. Virtual classes give you a chance to level up your skills by using what you learn in Bootcamp Spot and getting hands-on practice with the guidance of industry professionals.

What do I need to know about virtual classes?

- Virtual classes are 2-hour long classes on Zoom.
- Open Office Hours are held before every class.
- You can miss no more than 8 classes.
- Class recordings are available in Bootcamp Spot.

How do I prepare for class?
Check out your Getting Ready for Class page in Bootcamp Spot for downloadable class activity files and details on which lessons to complete before each class.

Learning Technology

The online boot camp learning experience is centered on the following three technologies:

Bootcamp Spot	Our learning environment Bootcamp Spot is built on the leading cloud-based Canvas Learning Management System. This is your main hub for all course curriculum and assignments.
 **Slack**	Slack, the popular business collaboration tool, is our core learning community space. On Slack, you will communicate with peers and instructional staff to celebrate victories and troubleshoot challenges. You can access Slack through your web browser or install the app on your computer and/or mobile device.
 **Zoom**	Zoom is where we hold all virtual classes. This video conferencing software allows us to connect in real-time with video, audio, screen sharing, and chat. You will access Zoom directly through the course. Be sure to have your headset with mic and webcam ready. We also highly recommend having a second monitor during these sessions so that you can practice coding as you interact with your classmates.

You will use a suite of data tools, technologies, and languages in the curriculum, including Microsoft Excel, Python, GitHub, R, Tableau, and JavaScript.

Minimum Technology Requirements

To successfully use the tools and technologies required in this course, you need the right equipment.

Here's what you need to get started:	Here's what you'll need before your first virtual session:
Laptop with Mac or Windows operating system (Note that you cannot use Linux in this course.)	Webcam
8 GB RAM and 64-bit dual processor	Headphones with a microphone
High-speed internet connection (We recommend a download speed of at least 25 Mbps and an upload speed of at least 5 Mbps.)	An external monitor that is compatible with your laptop (highly recommended for Zoom sessions)

Course Feedback

We believe in continually improving our program, whether it's building in more targeted practice to support your learning, adding new content to address the evolving needs of a dynamic industry, or providing your instructor with innovative ideas to tailor the experience for your class. For this reason, we ask for your feedback at the end of each module, at the course midpoint, and at the end of the program. We appreciate your honest responses.

Section 3: Course Assessments and Requirements

Grading Policy

For each assignment, you will receive numerical and letter grades as shown in the following table. You will receive an Incomplete for assignments that do not meet the baseline requirements. All assignments that do not receive incompletes, count toward graduation requirements. See your enrollment agreement for any minimum grade requirements.

A+	100	**B+**	88–91	**C+**	78–81	**D+**	70–71	**F**	< 61
A	95–99	**B**	85–87	**C**	75–78	**D**	65–69		
A–	92–94	**B–**	82–84	**C–**	72–74	**D–**	62–64		

Assessment Criteria

You will receive an overall grade for the course based on the following. Note that your two lowest Challenge assignment scores (or skipped assignments) will be dropped.

Assessment	Description	Number	% of Final Grade
Challenge Assignments	Weekly individual assignments. You will receive rubric-based feedback and the lowest two grades will be discarded.	19	60%
Unit Assessments	Assessment at the end of each unit to evaluate your knowledge of key concepts.	5	10%
Final Project	Final project at the end of the course. Working in a small group, you will select, develop, and present a project that demonstrates the skills you learned.	1	30%

Graduation Requirements

Graduates of the program will receive a certificate of completion from the university.
In order to graduate from this course and receive your certificate, you must:

01 Complete all online modules.

02 Miss no more than eight required virtual classes (via Zoom).

03 Complete all Unit Assessments.

04 Miss no more than two challenge assignments.

05 Complete the final project.

Section 4: Support

Your Support Community

We believe that a robust support team is essential to helping you achieve success in the program. Below are the core members of your team:

Instructor	Your instructor is the lead facilitator for your learning experience. Your instructor will manage all virtual classes and office hours, guide the TA team, and monitor your progress.
Teaching Assistants (TAs)	TAs provide support and guidance. TAs attend virtual classes, helping troubleshoot issues and lead small breakout groups. TAs also provide additional office hour sessions on Zoom.
Student Success Manager (SSM)	Your SSM oversees your experience and assists you with any non-curriculum needs, including questions about course structure, delivery, or policies. If you don't know where to go, who to ask, or what to do, ask your SSM!
Learning Assistants	The Learning Assistant team is available to answer quick coding & concept questions via Slack outside of class hours. Simply use the #AskBCS tool in Slack to connect.
Tutor Network	If you need additional help to get back on track, your SSM can arrange 1:1 tutoring support.
Your Peers	You'll chat with other students, ask for help, and assist others in class and Slack. You'll also connect in group projects and study groups.
Career Services	Your Career Director and Career Materials Advisors will support you in becoming employer competitive. Career Services is an optional service available throughout the program.

Support: Tips for Success

We're excited that you've committed to this Boot Camp. It may be difficult at some points, but with your dedication and our support, you will have the tools you need to thrive.

- Establish your weekly schedule upfront. Identify a safe, quiet place to work and discuss your plans with family and friends to ensure you get the needed support.
- Sync your class calendar to your phone or web calendars so that your assignment and virtual class dates are always handy. Your learning environment contains an easy iCal link.
- Start the online lessons early to give you ample time. Some weeks may be harder than others depending on the topics covered. It helps to know what to expect early.
- Attend as many Office Hour sessions throughout the week as you can.
- Remember that you are not alone, especially early on in the course. If you are struggling, it means that others are too. Make connections. Help your peers and ask for their help as needed. Set up a study group.
- Connect with your Student Success Manager (SSM) for any non-curriculum support. Your SSM is entirely dedicated to your success and can guide you with any support you need.
- Focus on the big picture—beyond the specific skills of the week. A key element of this boot camp is "learning how to learn." Skills will change as technology changes, but the critical thinking techniques you learn in this course will help you evolve with the field.
- Celebrate your wins and those of your peers. If you're feeling proud of a creation or a hurdle you've overcome, share it in Slack!

Section 5: Expectations and Policies

Time Expectations

You should expect to spend around 20–30 hours a week working on your course; though, the actual amount of time you spend will depend on a number of factors, including your pace, difficulty of the week, and attendance at optional sessions. In general, online lessons should take an average of 10–15 hours a week and the weekly challenge should take 5–10 hours a week. You will want to track yourself early in the course to identify how long you spend on each section and adjust expectations accordingly.

Late Assignment Policy

Please remember to check your challenge assignment due dates. It's important that you follow these dates to stay on target and receive timely feedback. The program moves fast, so it will be difficult to catch up if you fall behind. If you wish to skip an assignment, click Next, and move on to the next Module. You must submit all work by the last day of the course.

Prerequisites

There are no prerequisites for the course. However, you must have fundamental computer skills and be comfortable using the internet and. We recommend that you have some basic experience with Excel and feel comfortable working with quantitative information.

This course covers coding skills commonly used in data fields. You are not required to have any coding experience, but should be ready to learn how coding languages work.

Communication Guidelines

At times, a boot camp can be stressful as you fight to crack the code of emerging skills. Therefore, it's important to be mindful of the needs of your peers and support teams and be courteous in how you communicate. This is especially true in online communication spaces such as email or Slack, where it's easy to misinterpret comments. Consider the following communication guidelines:

- Use encouraging, supportive tones when interacting with peers.
- Try to help peers who are stuck on a topic.
- Take opportunities to thank your support team for their help.
- Avoid yelling, sarcasm, and abusive language directed at peers or support team members.
- Be clear and specific in all of your help requests. Include screenshots and locations for content trouble spots so that your TAs and peers can assist efficiently.

Expectations and Policies

Code of Conduct / Academic Honesty	You are expected to work independently on all of your assignments and quizzes and submit your own work. Any violations of the university's academic honesty policy may result in your removal from the program. Please consult with your program success manager if you have any questions about the university's policy.
Drop Policy	In the event you are not able to take the course, you can drop within the timeframe outlined in your enrollment agreement and receive a refund of your balance paid. After the first full week, you are required to fulfill your tuition payments regardless of your status in the course. If you wish to drop, you must contact your SSM.
Tutoring Policy	We offer tutoring for students who need additional support through one-on-one, 50-minute remote online sessions. While this service is included with tuition, you must be in good standing with class attendance, payment, and assignment submissions to qualify for tutoring. Students are granted one session per week during the course. You cannot accrue additional sessions, nor can they be held after the graduation date. Failure to show up for a scheduled tutoring session will result in ineligibility for future tutoring. Cancellations for a tutoring session must be made at least six hours prior to the session.
Career Services Policy	Career services strives to help you become employer-competitive. They offer support via a Career Materials Advisor, Career Coach, in-person demo days, and online workshops and events. You will have access to 1:1 career coaching with your Career Coach from the first day of class until 90 days after graduation. The Career Materials Advisor will respond within 96 business hours and your Career Coach will respond within 24 business hours.

Accessibility and Privacy Policies

Our program is designed to make learning accessible to all students. We optimize content for screen readers and use captioning on videos, and our technology and course design meets WCAG 2.0 standards. If you require additional assistance, please reach out to your PSM.

The following links display the accessibility policies for technology used in the course:

- Canvas
- Slack
- Zoom
- Learnosity

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- Slack
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- Learnosity