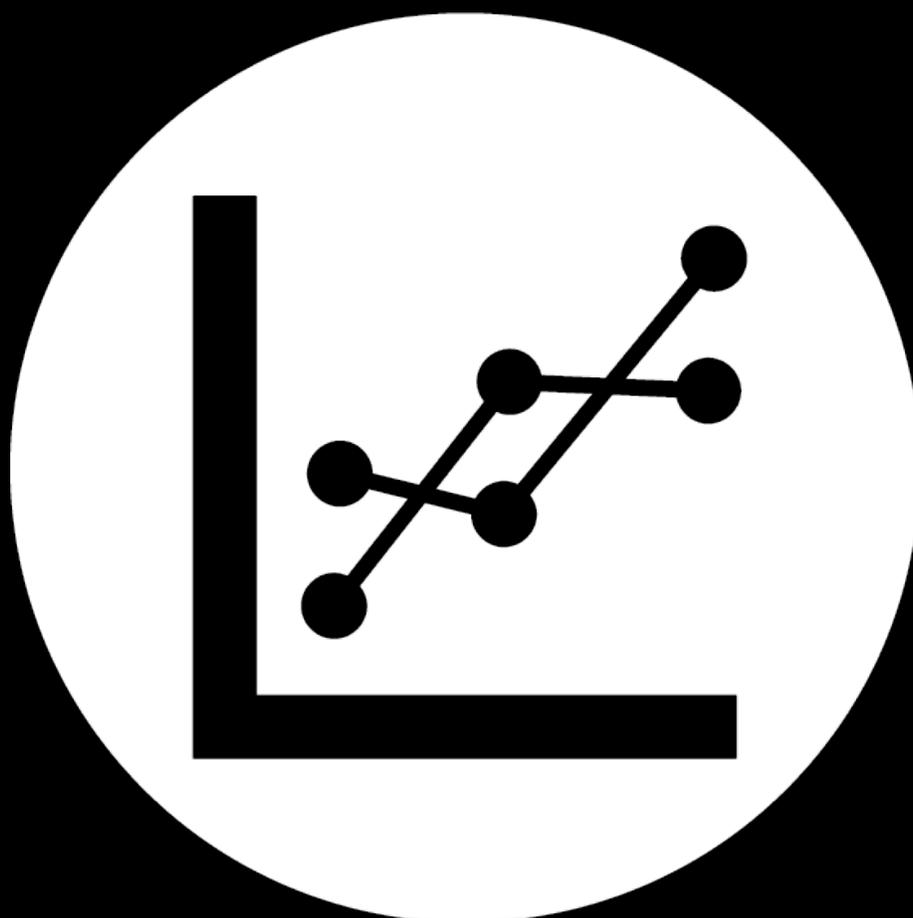# DATA SCIENCE & ANALYTICS

# DATA SCIENCE & ANALYTICS

Data Science & Analytics is a one-of-a-kind, 8-week course that teaches the fundamentals of data analytics, using easy-to-understand and engaging sports data exercises. Offered by Startup Institute and Stattleship, classes include hands-on training with R and Tableau, empowering students to take their career to the next level by moving beyond simple spreadsheets to impressive dashboards and visualizations.

Students learn what to expect in their next roles from experienced analytics professionals and startup veterans who have hired and grown successful data science teams. The best part: students learn these skills using data that they know and love.

Classes begin on March 3 and continue each Thursday evening for eight weeks. Each session is 2.5 hours. Start time is 7:00 PM.

# COURSEWORK

*Pre-work* includes review of websites that provide background for the first class and  a survey to gauge the level of instruction and activities that best fit with students' needs.

**Topics and Outcomes for Each Class**

*Week One: Data Science Overview*

In this session, students learn about what data science is and why it matters. Students learn what kind of roles data scientists play in startups and larger companies. They gain knowledge of tools that data scientists use and a clear understanding of what to expect from the course.

Rstudio setup and Stattleship Token build on pre-work exercises. Students select a sports question for their capstone projects.

*Week Two: ETL and Excel Basics*

Students begin with critical practices for  working with data files. They learn how to  question the source and quality of the data. Working with a raw data file from Stattleship in Excel, they start to transition to R. From this activity, students develop skills in creating a better-formatted data file.

### Week Three: R Intro and APIs

During the third class, students learn how to read data into R from various sources. They will understand how data APIs differ from batch files. Students will be able to make a simple API call to read game scores from recent events directly into R. As a result of this learning, they will be able to obtain live Stattleship boxscore data.

### Week Four: Data Exploration with R

In this session, students will parse and explore data using summary and aggregation techniques in R. They learn how to subset and combine different data sets. With exercises and analysis, students identify problems with the data and missing data points. At the completion of this session, students are not only better able to detect problems, they also will have discussed processes and used tools to resolve them. This session also includes a brief introduction to Tableau Public and how to publish a workbook with extracted data.

### Week Five: Data Visualization

Students learn to explore data visually using ggplot2 in R. They build understanding of the basics of ggplot2 such as data, aesthetics and geometries. They will learn how to determine when to use various types of charts (bar chart, scatter diagram, facet, etc.).

### Week Six: Scripting and Reproducibility

Students set up multi-steps scripts that help automate data acquisition and formatting. Further developing skills in these areas, they request updates from the Stattleship database and receive up-to-date stats. They identify the advantages to repeating an analysis in R instead of Excel. As a result of this learning, students will be able to create reproducible R scripts that can be updated with live data from Stattleship API.

### Week Seven: Interactive Dashboards with Shiny

During this session students learn how to create and deploy an app to Shinyapps.io in preparation for their week 8 presentations. This Shinyapps.io dashboard, combined with Tableau Public, will serve as a public portfolio of the work they completed in the course.

### Week Eight:  Project Presentations

In the last class, students review the sports question that that they chose in week one. Their presentations include findings and conclusions. Feedback and advice from instructors and peers help students focus on skills and tactics for not only communicating findings, but on the approach they use for using data to support decisions as a catalyst for action.

# ABOUT OUR PART-TIME CLASSES

Our part-time classes provide you with a supportive community as you learn introductory technical skills. We combine instructors from around the local tech community, in-person evening classes, and online resources to create a personalized learning network.

Whether you are aiming for a promotion, exploring a new career path, or looking for a new hobby—our intro classes will get you started.

"

The course is taught for you to learn at your own pace. In the community, you are surrounded by ambitious and smart people. You will have the opportunity to share honest conversations with the teaching mentors and have their help guide you closer to your personal goals. For anyone who is looking to grow their network, this is a great place to be.

**— Dennis Yip, Part-Time Class Alumnus**

Want to talk? We're here to answer your questions and help you determine if our program is right for you. Reach out to Carlin for more information.

**Carlin Thomas**
Manager, Part-Time Programs
(773) 332-7778
**carlin@startupinstitute.com**

**REGISTER NOW**

**Other Classes Offered:**

*Intro to Web Design*
Create digital experiences that balance utility and aesthetics.

*Intro to Ruby*
Learn one of the most accessible and sought-after coding languages.

*Intro to JavaScript*
Build interactive and performant websites with this versatile web development classic.

*Intro to Technical Marketing*
Explore the tools and best practices you need to know to be a full-stack digital marketer.

*\*Available courses differ by location. Visit our website to find out which classes are offered in the city near you.*

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