# Designing and Teaching a Data Science Bootcamp

Metis provides immersive data science training to teach students job-ready skills for the new economy. When Metis sought out a team of experienced experts in the field, they approached Datascope.

From scratch, Datascope's data scientists designed the entire 12-week curriculum, and taught the first three cohorts. Since then, Datascope has continued to help Metis build their data science team and transition the teaching role to full-time internal instructors as Metis expands from New York to San Francisco and beyond.

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John Polstein
CEO, Kaplan Test Prep

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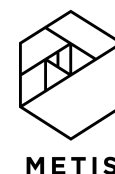
What makes a good data scientist?

As the "data scientist" title encompasses an increasingly expansive spectrum of technical roles, the first major challenge of designing the bootcamp was to precisely define the "data scientist." After surveying teams across industries and locations, and coming to grips with our own thoughts on the matter, we distilled our findings into five skillsets that great data scientists possess:

- **Design.** Ask directed, strategic questions and use the iterative design process to make sure to solve the right, big picture problem. This is the most important skill and one that is overlooked by other data science training environments.

- **Data.** Obtain, clean, store, manage, and interact with data.

- **Algorithms.** Detect patterns in the data using powerful statistical techniques, machine learning algorithms, and analytical frameworks to extract meaningful input.

- **Tools.** Write code using a wide array of programs, software libraries, environments, and architectures that facilitate data manipulation, analysis, and visualization.

- **Communication.** Transform results into clear and actionable insights for broad audiences through data visualization, storytelling, and abstracting technical ideas.

The goal of the bootcamp is thus to foster these skills in every student.

Experiential learning: real-life data science in bootcamp form

Unlike in most schools, students in the Metis Data Science Bootcamp practice doing real world data science. The 12-week curriculum includes five projects, each with data and problems inspired by Datascope's client work. Throughout the program, students gain increasing autonomy with project design and scope as they become more technically proficient and comfortable facing real, open-ended data science problems. In completing these projects, students

develop a portfolio showcasing their data science capabilities in a way that is transparent and understandable to prospective employers.

Anyone that works as a data scientist will agree that it's a team sport; even experts in the field are more productive when they are effective team players. To this end, Datascope encourages students to continually collaborate by integrating team projects, group presentations, and pair programming into the curriculum. This way, students work alongside their peers, teaching and learning from one another.

"I loved it," said Emmanuele Salvati, winter 2015 alumnus. "The coursework was a good mix of learning new topics and hands-on work on programming challenges, projects, etc." To create such an experience, Datascope carefully coordinated each of the five projects with specific lessons throughout the curriculum. Each day, students learn new topics in a lecture or workshop, complete challenge problems to explore these topics at a deeper level, and then ultimately apply them to their projects. By learning, exploring, and applying the curriculum

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Datascoper Irmak Sirer introducing a concept at the bootcamp

material to challenge problems and projects every day, students exercise the ability to quickly learn and adapt new concepts. As data science is a rapidly evolving field, this is an increasingly valuable asset.

"Datascope designed and taught a spectacular course. The experiential and collaborative format was excellent for building the capabilities of everyone involved, and it was also fun," described Jason Moss, Co-founder of Metis and VP at Kaplan. "As a result of our initial experience working with Datascope, we are excited to continue to grow and expand our relationship with them."

An overwhelming success

The Metis Data Science Bootcamp continues to be extremely successful, with an overwhelming majority of the students successfully employed as data scientists within a few weeks of graduation. Feedback from the bootcamp alumni has been extremely positive. "I learned more than I could have ever expected - both from the teachers (who are some of the best teachers I've ever had) and the other participants," described Lyle Morgan, a winter 2015 alumna. As the reputation of Metis grows, they have expanded from New York to San Francisco and Chicago, and are on

track to expand to other cities as well. "In an ever-evolving education landscape, Datascope helped position Kaplan to better meet the needs of new economy skills training. We are thrilled to be in this position and we wouldn't be here without Datascope's partnership," said John Polstein, CEO of Kaplan Test Prep.

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