

# DATA SCIENCE CRASH-COURSE

A data science quick-start guide by

SHARP SIGHT

# TABLE OF CONTENTS

Table of Contents	ii
Data science is one of the most valuable skills of the 21st century	1
The first programming language you should learn	3
How to set up R	5
A step-by-step data science learning plan	11
You need to master the basics first	22
How to create 3 essential data visualizations	29
dplyr: How to do data manipulation with R	35
What is machine learning and why is it so important?	46
A quick introduction to machine learning in R with caret	64
What's the difference between machine learning, statistics, and data mining?	83
To master data science, you need to practice	102
Postscript: Send us your questions and problems	105

# DATA SCIENCE IS ONE OF THE MOST VALUABLE SKILLS OF THE 21ST CENTURY

So you want to learn data science. That's awesome.

Right now, the world has more data than we know what to do with. Some writers have called it "the data deluge," which sounds hyperbolic, but it's fairly accurate. Corporations, non-profits, scientists, even individuals now have the ability to capture massive amounts of data.

Meanwhile, the world desperately needs insight. The world is overrun with problems waiting to be solved, we just need *insight into how to fix those problems*.

So we have plenty of data. And lots of problems waiting to be solved.

What we don't have is enough people to analyze that data. We need insight, but don't have enough people to produce it.

That's where you come in. Data science is one of the biggest opportunities of this century. If you can master the skills of data, you'll not only be able to add massive value to the world by understanding and fixing complex problems, but also capture some of the value you create (in the form of profit).

Want to change the world? Want to create real value and build wealth?

Learn data science.

# THE FIRST PROGRAMMING LANGUAGE YOU SHOULD LEARN

When people want to get started with data science, inevitably they ask "Which tools should I use? I don't know where to start!"

More often than not, the answer they receive is a list of every tool that might be occasionally used for data science. I've seen lists of 25+ tools for "getting started."

That's BS. You don't have the time to learn 25 tools. And, most businesses that are hiring data scientists are looking for expertise with only a few core tools (typically R or Python, SQL, Excel and a few auxiliary tools).

All that said, don't listen to people giving you lists of dozens of tools. As with almost any task, learning data science is best performed when you simplify and focus your efforts on the things that have the highest return on

[Click here to download full PDF material](#)