



HAND-PICKED DATA SCIENCE RESOURCES FOR BEGINNERS

Here are 65+ hand-picked data science resources for beginners. To see the latest version, plus detailed annotations, visit on the [online resource list at EliteDataScience.com](https://elitedatascience.com).

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- Recommendation Systems
- Time Series Analysis

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- Problem Solving Challenges

1. FOUNDATIONAL SKILLS

1.1. PROGRAMMING AND DATA WRANGLING

Python Resources:

[Learn Python the Hard Way \(Online Book\)](#)
[LearnPython.org \(Interactive Tutorial\)](#)
[How to Think Like a Computer Scientist \(Interactive Book\)](#)
[PythonChallenge.com \(Online Puzzle\)](#)
[How to Learn Python for Data Science, The Self-Starter Way](#)
[A Beginner's Guide to SQL, Python, and Machine Learning](#)

R / RStudio Resources:

[R for Data Science \(Online Book\)](#)
[Swirl \(Interactive R Package\)](#)
[Introduction to Data Science with R \(Video Series\)](#)

1.2. STATISTICS AND PROBABILITY

[Statistics and Probability \(Khan Academy\)](#)
[Harvard Stats 110: Probability \(Video Series\)](#)
[Think Stats: Probability and Statistics for Programmers \(PDF\)](#)
[Crash Course on Basic Statistics \(PDF\)](#)
[How to Learn Statistics for Data Science, The Self-Starter Way](#)

Follow me on [LinkedIn](#) for more:

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2. TECHNICAL SKILLS

2.1. DATA COLLECTION

API Resources:

[Python: requests Quickstart Guide \(Tutorial\)](#)
[R: httr Quickstart Guide \(Tutorial\)](#)

Web Scraping Resources:

[R: rvest \(Tutorial\)](#)
[Python Web Scraping Libraries](#)

2.2. SQL

[Intro to SQL by Khan Academy \(Course\)](#)
[sqlcourse.com \(Interactive Tutorial\)](#)
[SQL Fundamentals \(Course\)](#)

2.3. DATA VISUALIZATION

[Data Visualization in Python \(Video Series\)](#)
[Data Visualization in R \(Video Series\)](#)
[Python Seaborn Tutorial](#)

2.4. APPLIED MACHINE LEARNING

[Machine Learning by Andrew Ng \(Video Series\)](#)
[Elements of Statistical Learning \(PDF\)](#)
[An Introduction to Statistical Learning in R \(PDF\)](#)
[How to Learn Machine Learning, the Self-Starter Way](#)
[7-Day Crash Course on Applied Machine Learning](#)
[Modern Machine Learning Algorithms: Strengths and Weaknesses](#)
[Python Machine Learning Tutorial](#)

3. BUSINESS SKILLS

3.1. COMMUNICATION

The best stats you've ever seen (TED Talk)

Think Fast, Talk Smart (Video)

7 Tips for Improving Communication (Video)

How to Win Friends and Influence People (PDF),
(Free Audiobook Version)

3.2. CREATIVITY & INNOVATION

Machine Intelligence and Data Products (Video)

Machine Intelligence Landscape (Chart)

The art of innovation (TED Talk)

7 steps of creative thinking (TED Talk)

Working backwards to solve a problem (TED Talk)

3.3. BUSINESS OPERATIONS AND STRATEGY

Data Driven Decisions (Video)

How to be data driven and build great products by DJ Patil (Video)

Big Data: New Tricks for Econometrics by Hal Varian (PDF)

How data will transform business (TED Talk)

Victor Cheng's Case Interview Workshop (Video Series)

3.4. BUSINESS ANALYTICS

Introduction to Business Analytics (Video)

Marketing Metrics and Analytics (Video)

Effective Cross-Selling using Market Basket Analysis (Tutorial)

An Intuitive Guide to A/B Testing (Video)

25 Examples of Business KPIs (Examples)

Analytics Academy by Google (Courses)

4. SUPPLEMENTARY SKILLS

4.1. NATURAL LANGUAGE PROCESSING (NLP)

Stanford NLP (Video Series)

CS224D: Deep Learning for Natural Language Processing
(Course), (Course materials here)

Python NLP Libraries

4.2. RECOMMENDATION SYSTEMS

Recommendation engine tutorial (Video Series)

Recommender Systems (Video Series)

Collaborative Filtering with Python (Tutorial)

Collaborative Filtering with R (Tutorial)

4.3. TIME SERIES ANALYSIS

Time Series (Course Material)

The Little Book of R for Time Series (Online Book)

Time Series Forecasting with Python (Tutorial)

Seasonal ARIMA with Python (Tutorial)

Statistical forecasting, Fuqua School of Business (Online Book)

5. PRACTICE

6 Fun Machine Learning Projects for Beginners

Predict Titanic Survival (Kaggle Competition)

Hacker Rank (Programming Challenges)

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