What are the skills required to become a data scientist/ML Engineer?

* **Programming** - Languages like R and Python
* **Statistics** -Forecasting, Descriptive and Inferential Statistics
* **Machine Learning algorithms -** i.e., Regression, Decision Trees, clustering
* **Data visualization -** tools like Tableau, Excel and also Python and R
* **Database Handling-** SQL, NoSQL, among others
* **Software Engineering**
* **Data Wrangling —**The process of cleaning, restructuring and enriching the raw data into a usable format

## **Courses**

1. Coursera -[**Data Science Specialization**](https://www.coursera.org/specializations/jhu-data-science) by Johns Hopkins University
2. Coursera - [**Data Science Professional Certificate**](https://www.coursera.org/specializations/ibm-data-science-professional-certificate) - IBM
3. [**Path Data Scientist**](https://www.dataquest.io/path/data-scientist/)- DataQuest
4. edX - [**Professional Certificate in Data Science**](https://www.edx.org/professional-certificate/harvardx-data-science) - Harvard University
5. Code Academy - [**Become a Data Scientist**](https://www.codecademy.com/learn/paths/data-science)
6. Udemy - [**Complete Data Science Bootcamp**](https://www.udemy.com/course/the-data-science-course-complete-data-science-bootcamp/)

## **Books**

1. O’Reilly — [**Data Science from Scratch**](https://www.oreilly.com/library/view/data-science-from/9781492041122/)
2. O’Reilly — [**Doing Data Science**](http://shop.oreilly.com/product/0636920028529.do)
3. [Roger D. Peng](https://leanpub.com/u/rdpeng) and [Elizabeth Matsui](https://leanpub.com/u/elizabethmatsui) — [**The art of Data Science**](https://leanpub.com/artofdatascience)

## **Additional Resources**

1. · [**The Data Science Handbook**](https://www.thedatasciencehandbook.com/)
2. · [**The Open Source Data Science Masters**](http://datasciencemasters.org/)
3. · Harvard University**—**[**Online Data Science Courses**](https://online-learning.harvard.edu/subject/data-science)

**Machine Learning Engineer**

## **Online Courses to Learn Machine Learning**

1. [The Analytics Edge](https://www.edx.org/course/analytics-edge-mitx-15-071x-2), MIT (edX)
2. [Machine Learning](https://www.coursera.org/learn/machine-learning), Stanford University (Coursera)
3. [Machine Learning A-Z™](https://www.udemy.com/course/machinelearning/): Hands-on Python and R in Data Science (Udemy)
4. [In Depth Intro to Machine Learning in 15 Hrs Of Experts Video](https://www.dataschool.io/15-hours-of-expert-machine-learning-videos/) (Dataschool)
5. [Advanced Machine Learning Specialization](https://www.coursera.org/specializations/aml), (Coursera)

## **University Classes on Machine Learning**

1. [Complete Collection of Machine Learning Classes](https://www.youtube.com/playlist?list=PLA89DCFA6ADACE599), Stanford University
2. [Machine Learning 2013](https://www.youtube.com/watch?v=w2OtwL5T1ow&list=PLE6Wd9FR--EdyJ5lbFl8UuGjecvVw66F6), Nando de Freitas, UBC

## **Books on Machine Learning.**

1. [Introduction to Statistical Learning](https://www.statlearning.com/), by Trevor Hastie, Robert Tibshirani and others
2. [Elements of Statistical Learning](https://web.stanford.edu/~hastie/Papers/ESLII.pdf), by Trevor Hastie, Robert Tibshirani and Jerome Friedman.
3. [Classification and Regression Trees](https://www.amazon.co.uk/Classification-Regression-Wadsworth-Statistics-Probability/dp/0412048418) by Leo Breiman

## **Scientific Articles of Machine Learning Algorithms**

1. [Random Forests](https://link.springer.com/article/10.1023/A:1010933404324), Leo Breiman, Journal of Machine Learning, 2001​
2. [Bagging Predictors](https://link.springer.com/article/10.1023/A:1018054314350), Leo Breiman, Machine Learning, 1996

## **Other Resources**

1. [Kaggle Learn](https://www.kaggle.com/learn/overview)
2. [Kaggle Competitions](http://www.kaggle.com/)
3. [Papers with Code](https://github.com/zziz/pwc)
4. [ArXiv Sanity](http://www.arxiv-sanity.com/top)
5. [Two Minute Papers](https://www.youtube.com/user/keeroyz)

## **Other Blogs with Resources to Learn Machine Learning**

1. [Every single Machine Learning course on the internet, ranked by your reviews](https://www.freecodecamp.org/news/every-single-machine-learning-course-on-the-internet-ranked-by-your-reviews-3c4a7b8026c0/)
2. [The Best Resources I Used to Teach Myself Machine Learning](https://www.freecodecamp.org/news/the-best-resources-i-used-to-teach-myself-machine-learning-part-1-292232d167/)
3. [Best Resources to learn AI, Machine Learning & Data Science](https://towardsdatascience.com/best-resources-for-ai-machine-learning-data-science-d72625d4689d)