Syllabus

- **Mathematics,statistics and probability**

  Because this is the basis by which you will understand the data and understand how to build machine learning Algorithms and how to work with them.

- **Data Analysis**
  you will use programming languages, tools and techniques to answer this question *" What happened? "*

  Then

- **Machine Learning**
  You will learn machine Learning and its algorithms and apply them to the data to answer the question, *"What will happen in the future?*"

- **Deep Learning**
  working with unstructured and big data.

Schedule

- **Beginner**: you get a basic understanding of data analysis, tools and techniques.
- **Intermediate**: dive deeper in more complex topics of ML, Math and data engineering.
- **Advanced**: where we learn more advanced Math, DL and Deployment.

Roadmap

https://github.com/CIS-Team/DataScience-Squad?fbclid=IwAR2VZE1FOB-gyIVb3KDfz573jtKsiRzauXYPHD56hhk9abVpbBkf__hsIcw_hsIcw&h=AT1eXDVSoOm6179VQfVZ-xyhRSvwk

Description of the Schedules

Beginner

Statistics & Probability

- descriptive Statistics
  Book

- Probability 1
- Probability 2
  Book

Data Analysis (Python)

- Python basics
- oop
- co_python_course
- pandas- Kaggle **or** pandas- youtube
- Numpy
- Matplotlib

For data camp courses ؛ microsoft azure tools gives 2 free months,also github student pack give 3 months google how to get it.

- Data Cleaning - kaggle
- Data Cleaning - Data Camp
- Data Visualization 1 - Data Visualization 2
- Exploratory Data Analysis in Python
- SQL 1 - SQL 2

- Data Analysis with Python
- Become a Data Analyst -learning path- linkedin
- **Time Series Analysis:**
  - Track.
  - Book.
  - fbprohet.

Intermediate

Mathematics

- Mathematics for Machine Learning: Linear Algebra
- Mathematics for Machine Learning: Multivariate Calculus
- Mathematics for Machine Learning: PCA

Machine Learning

- IBM ML with Python
- Hands on ML book
- ML Algorithms in Practice
- ML scientist

Feature Engineering

- Tutorial
- Article
- Book

Other topics related to all of the above

- **Web Scraping & APIs:**
  - course.
  - intro2.
  - Tutorial.
  - book for both topics.

- **APIs:**
  - Tutorial.
  - Article.
  - Tutorial.

- **Stats:**
  - This stats. book.
  - Think Bayes.

- **Advanced SQL:**
  - course.
  - joins.

Advanced

Deep Learning - Tensorflow & Keras - Machine Learning Engineering for Production (MLOps) - Practical Data Science

We will improve and add more!

Expected outcomes

Develop relevant **programming** abilities.

Obtain, **clean/process**, and transform data.

Demonstrate proficiency with statistical **analysis of data.**

The ability to build and assess data-based **models**.

Execute statistical analyses with professional statistical **software**.

Apply data science concepts and methods to **solve** problems in real-world contexts and will **communicate** these solutions effectively.

Schedule Duration

Beginner: **[3 Months]**

Intermediate: **[3 Months]**

Advanced: **[3 Months]**

EDUCATIONAL OBJECTIVES

can be divided into two categories: *Soft Skills* and *Hard Skills*.

Soft skills include behavioral skills that help you put your idea on the table with sufficient explanation and convincing like *problem-solving*, *critical thinking* and *Curiosity*.

Hard skills teach you to use all the tools and techniques to derive results from huge data sets like:

Foundation blocks **(***Programming language*, *Descriptive analytics* and *Visualization*, *Data handling and manipulation*, *Data wrangling and summarization***)**,

statistical tools, *algorithms*, and *machine learning.*

A perfect amalgamation of soft skills and hard skills is exactly what enterprises are looking for in their in-house data scientists.

Homework

Students will complete multiple homework assignments during the course. These homeworks are designed to reinforce the lectures and reading materials.
Each homework will be graded out of a total of 100 points and are counted equally when computing the homework portion of the final grade.