

Emerging Technologies

International Data Science Program

Curriculum

Program Outline :

Module 1: Fundamentals of Data Science

1. **Introduction to Data Science**
 - Core principles, tools, and industry applications.
2. **Basics of Data Wrangling**
 - Data cleaning, preparation, and real-world applications.
3. **SQL for Data Management**
 - Database design, querying, and data management fundamentals.
4. **Python Programming for Data Science**
 - Python syntax, data types, and libraries for data analysis.

Module 2: Advanced Analytical Tools

5. **Advanced Excel Techniques**
 - Data cleaning, pivot tables, macros, and automation.
6. **Data Visualization with Tableau**
 - Interactive visualizations, dashboards, best practices.
7. **Business Statistics and Probability**
 - Descriptive/inferential statistics, probability, hypothesis testing.
8. **Intermediate Python for Data Analysis**
 - Pandas, Matplotlib, advanced data manipulation.

Module 3: Practical Applications

9. **Data Cleaning and Preprocessing**
 - Techniques for cleaning data, feature engineering, quality assurance.
10. **Exploratory Data Analysis (EDA)**
 - Data distributions, pattern identification, visualization.
11. **Advanced Data Visualization Techniques**
 - Dynamic visualizations, storytelling with data.
12. **Statistical Inference and Modeling**
 - Regression models, hypothesis tests, real-world applications.

Module 4: Capstone Project

13. Integration of Learned Skills

- Apply tools and techniques to real-world problems, comprehensive solutions.

14. Advanced Machine Learning Algorithms

- Ensemble methods, clustering, neural networks, deep learning.

15. Time Series Analysis

- Forecasting, trend analysis, seasonal decomposition.

16. Natural Language Processing (NLP)

- Text preprocessing, sentiment analysis, topic modeling.

Elective Modules

17. Data Ethics and Privacy

- Ethical considerations, privacy laws, compliance strategies.

18. Machine Learning Fundamentals

- Supervised/unsupervised learning, model training and evaluation.

19. Advanced SQL Techniques

- Complex queries, stored procedures, performance optimization.

20. Big Data Technologies

- Hadoop, Spark, distributed computing, practical applications.

21. Predictive Analytics

- Regression analysis, time series forecasting, model validation.

22. Data Mining

- Clustering, classification, knowledge discovery.

23. Data-Driven Decision Making

- Decision support systems, business intelligence tools.

24. Cloud Computing for Data Science

- Cloud platforms, data storage, scalable solutions.

25. Data Engineering

- Data pipelines, ETL processes, integration technologies.

Websites:

- <https://chools.in/>
- <https://ramaqchools.com/>
- <https://www.choolsgroup.com/>