

SkillCred

# Data Science & Analytics Program

Extract Insights. Build Predictive Models. Tell Stories with Data.

8

Weeks

96

Hours

4

Projects

6

Days/Week

**HYBRID MODEL**

2 Solo + 1 Pair + 1 Group Capstone

**Dual Track**

8W Standard + 4W Fast Track

**Mentor Verified**

Every project reviewed

**PAT Certified**

Score visible to all HRs

# 8-Week Syllabus

Mon-Sat | 2 Hrs/Day | 48 Sessions | 96 Contact Hours

## 01 Python & Exploratory Analysis

NumPy, Pandas, data cleaning, EDA, descriptive stats, Matplotlib, Seaborn

SOLO 1 START

## 02 Statistics & Probability

Distributions, CLT, hypothesis testing, confidence intervals, A/B testing

SOLO 1 DELIVERY

## 03 Visualization & Storytelling

Plotly, Altair, Folium, Streamlit/Dash, storytelling framework, chart selection

SOLO 2 START

## 04 Regression & Classification

Linear/logistic regression, Trees, RF, XGBoost, feature eng, evaluation

SOLO 2 DELIVERY

## 05 Clustering & Time Series

K-Means, DBSCAN, time series (ARIMA, Prophet), forecasting, anomaly

PAIR START

## 06 Advanced Analytics

Text analytics, TF-IDF, web scraping, recommendation systems, PCA/t-SNE

PAIR DELIVERY

## 07 Big Data & SQL Analytics

SQL window functions, PySpark, cloud analytics, automated reporting

CAPSTONE START

## 08 Capstone Analytics & Demo

E2E lifecycle, problem framing, dashboard, stakeholder storytelling, demo

CAPSTONE DELIVERY

### DAILY 2-HOUR SESSION

0:00-0:10

Recap

0:10-0:40

Concept

0:40-1:30

Build Sprint

1:30-1:50

Standup

1:50-2:00

Wrap

# Your 4 Portfolio Projects

2 Solo (individual) + 1 Pair (collaborative) + 1 Group Capstone (team)

**SOLO 1 | INDIVIDUAL | Weeks 1-2**

Difficulty:

## Statistical Research Report with Hypothesis Testing

Comprehensive EDA with 20+ visualizations, 5+ hypothesis tests (t-test, chi-square, ANOVA, Mann-Whitney), confidence intervals, A/B test simulation with power analysis, outlier detection strategy comparison, missing data MCAR/MAR/MNAR classification. Polished Jupyter narrative with executive summary.

Tech: Python, Pandas, NumPy, SciPy, Statsmodels, Matplotlib, Seaborn, Plotly, Jupyter | HR Signal: Junior Data Analyst / Data Scientist hire bar

**SOLO 2 | INDIVIDUAL | Weeks 3-4**

Difficulty:

## Interactive Predictive Analytics Dashboard

Multi-page Streamlit/Dash app, interactive Plotly charts with drill-down, geospatial Folium maps, ML predictions with what-if sliders, model comparison (3+ models), SHAP feature importance, multi-select filters, PDF report export. Dashboard loads <5s, predictions <1s, model beats baseline by >20%.

Tech: Streamlit/Dash, Plotly, Altair, Folium, Scikit-learn, XGBoost, SHAP, pdfkit | HR Signal: Data Scientist hire bar

**PAIR PROJECT | 2-3 STUDENTS | Weeks 5-6**

Difficulty:

## Multi-Model Advanced Analytics Engine

Customer segmentation (K-Means, DBSCAN, hierarchical + silhouette), time series forecasting (ARIMA, Prophet, LSTM comparison), text sentiment analysis (TF-IDF + logistic vs transformer), unified Streamlit app, cross-technique insights, automated NL summaries. Silhouette >0.4, MAPE <15%, sentiment F1 >0.75.

Tech: Scikit-learn, Prophet, statsmodels, HuggingFace, Streamlit, Plotly, NLTK/spaCy

Student A: Clustering pipeline, time series models, evaluation, cross-technique analysis | Student B: Text analytics, transformer integration, unified dashboard, insight generation

**GROUP CAPSTONE | 5 STUDENTS | Weeks 7-8 | Pick 1 of 3**

Difficulty:

## Option 1: Business Intelligence Platform for SMBs

Data connectors (CSV, Sheets, PostgreSQL, API), automated EDA/profiling, natural language query (LLM-powered SQL), drag-and-drop dashboard builder, automated insight detection, scheduled email reports, team collaboration. Tech: React, Streamlit, OpenAI API, PostgreSQL, Plotly, FastAPI, Docker

## Option 2: Predictive Supply Chain Analytics

Multi-SKU demand forecasting, inventory optimization (safety stock, reorder points), supplier scoring, logistics route visualization, what-if simulator, executive KPI dashboard, stock-out alerts. Tech: Prophet, LSTM, Scikit-learn, Streamlit, Plotly, Folium, FastAPI, Docker

## Option 3: Real-Time Social Intelligence Platform

Multi-platform data collection (Twitter/Reddit/News), real-time sentiment + topic modeling, influencer identification, trend detection with early warning, competitive brand comparison, crisis detection, automated briefings. Tech: Python, HuggingFace, Kafka, Streamlit, Plotly, FastAPI, Docker

Module Ownership (all capstones): A: Data pipeline, connectors | B: ML models, NLP, forecasting | C: Insights engine, anomaly detection | D: Dashboard, reports, visualization | E: API, deployment, monitoring

# Two Career Pathways

Both available simultaneously – not mutually exclusive

## Employment Track

1. Complete 4 verified projects
2. Take PAT certification exam
3. Portfolio published to HR Portal
4. HRs discover and shortlist you
5. Interview scheduled via platform
6. Offer extended – placement tracked

## Startup Track

1. Build investor-grade capstone
2. Mentor verifies for Investor Portal
3. List project with pitch deck & demo
4. Investors discover your project
5. Pitch invitation and presentation
6. Startup mentorship and funding

## Project Assessment Test (PAT)

Your certification score – visible to every HR on the platform

MCQs 20% | Coding 25% | Architecture 20% | Viva Defense 25% | Peer Review 10%

- 90–100** **Elite**  
Top 5% – senior roles, startup founding
- 75–89** **Pro**  
Job-ready with solid fundamentals
- 60–74** **Certified**  
Entry-level – core concepts proven

## Mentor Verification – The Trust Engine

No project reaches HR or Investor portal without rigorous mentor review.

Code Quality 25% | Functionality 25% | Architecture 20% | Docs 15% | Deployment 15%

## Ready to Build Your Future?

4 verified projects | PAT certification | Two career pathways

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