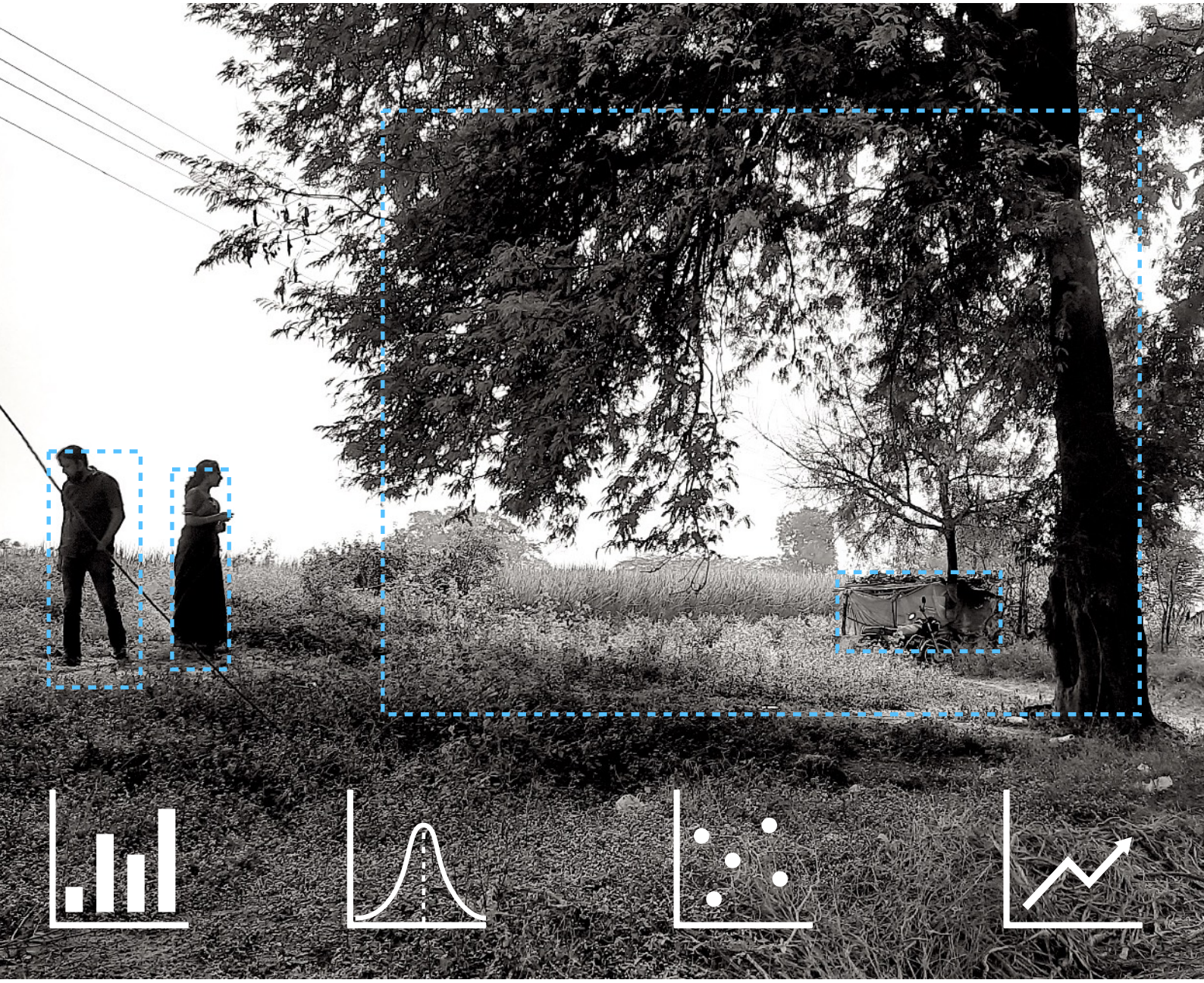
learndataa

imagine data to solve problems

Please note: Learndataa is not a company.



learndataa curriculum

- From Fundamentals to Neural Networks -

Beginner · Intermediate · Statistics · Neural Network Design .

Mathematics for Machine Learning

Web: www.learndataa.com; Email: learndataa@gmail.com; Phone: +91-7887-847-302

Data Science for Beginners

Live Course Highlights

- **1-on-1 or small group (1–5 students):** Focused attention and real-time interaction
- **Hands-on learning:** Code along every exercise
- **Project-based approach**: Apply what you learn to projects
- **Personalized mentorship**: Tailor your projects to your own background or domain interests
- **Portfolio & career guidance**: Get help creating portfolio and preparing for data interviews

Prerequisites for the course:

- Interested to learn coding in Python
- Loves to find hidden gems in different types of data
- Basic high school mathematics, geometry and algebra
- Knowledge of statistics would help but not required

Who can benefit from this program?

If you are:

- a complete beginner to coding and/or Python & loves to work with data
- a working IT or non-IT professional looking to get into data science
- interested to learn how to use the power of coding in data analytics
- looking to take your first step towards the world of Artificial Intelligence (AI)

Course outline

Part I: Preliminaries

- What is data science?
- Basics in descriptive statistics
- Basics in algebra: matrices, vectors

Part II: Begin to code

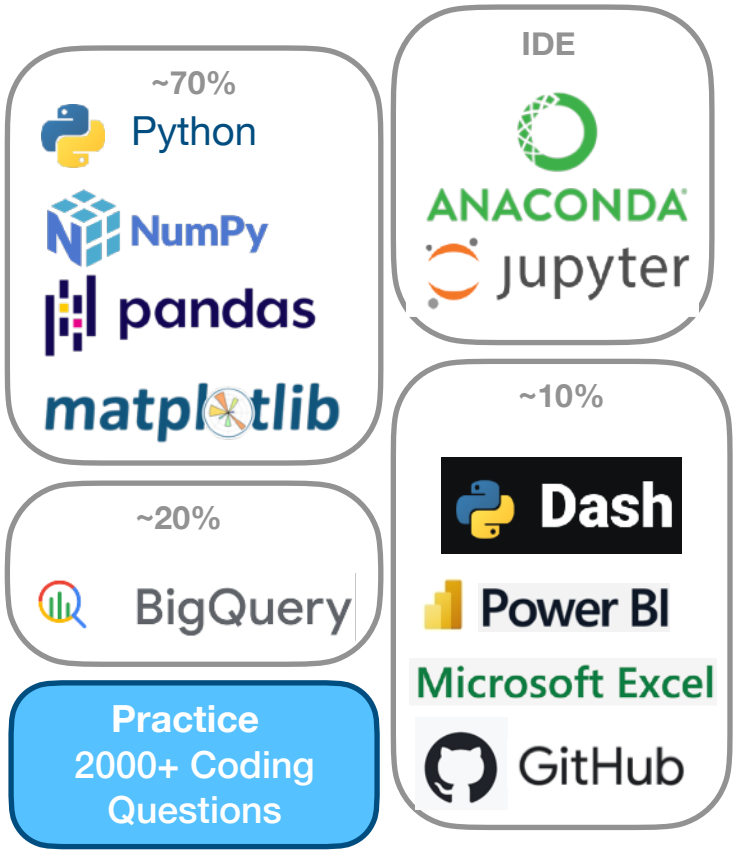
- Install Anaconda, Jupyter Notebook
- Basic datatypes in Python
- Numpy: matrix manipulations
- Matplotlib: create visualisations
- Pandas: working with DataFrame

Part III: Data analysis

- Data preprocessing
- Projects with toy datasets
- Projects with real-world datasets
- Create your online portfolio

Part IV: Final project

- Possibility to customised based on students interest



Data Science for Intermediate

Live Course Highlights

- **1-on-1 or small group (1–5 students):** Focused attention and real-time interaction
- **Hands-on ML projects:** Learn by implementing scikit-learn algorithms on real datasets
- **Practical, not theoretical:** Focus on applying models, tuning, and evaluation
- **Custom project selection:** Choose domains you care about
- **Portfolio-building support:** Build ML portfolio
- **Career transition guidance:** Receive help preparing for data science interviews

Prerequisites for the course:

- Data Science for Beginners
- Enjoys thinking out-of-the-box and from different angles about a data

Who can benefit from this program?

If you are:

- want to learn the implementation of Machine Learning using Scikit-learn
- love to predict what will happen in future based on data available
- interested in building prediction models
- Take your second step towards the world of Artificial Intelligence (AI)

Course outline

What is Included?: Only machine learning concepts of algorithms from from scikit-learn
What is not? Math theory, derivations and deep learning

Part I: Data Science Beginners

Part II: Data Preprocessing

- Getting started with Scikit-learn in Python
- Data cleaning
- Standardization, encoding

Part III: Implement Supervised Learning

- Regression, Classification
- Dimensionality reduction
- Model selection
- Projects in Supervised Learning

Part IV: Implement Unsupervised Learning

- Clustering
- Manifold learning
- Projects in Unsupervised Learning

Part V: Final project

- Possibility to customised based on students interest

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Introduction to Statistics

(Based on "Statistics" by Freedman, Pisani, and Purves)

Live Course Highlights

- **1-on-1 or small group (1–5 students):** Learn interactively with guided problem solving
- **Concept-first approach:** Develop intuition for probability, sampling, and inference
- **No coding required:** Pure reasoning, numerical examples, and visual understanding of data**Supportive discussion environment:** Learn through questions, and examples
- **Bridge to data science and analytics:** Gain the statistical foundation for coding-based courses

Prerequisites for the course:

- High school math

Who can benefit from this course?

- **Students or professionals** who want understanding of statistics before learning coding tools
- **Non-technical learners** curious about how data supports conclusions
- **Aspiring data analysts and data scientists** who want to interpret results correctly
- **Educators or researchers** seeking to refresh their understanding of core statistical reasoning
- **Anyone intimidated by "statistics"** who wants to finally *feel confident* about it

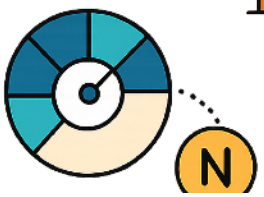
Course outline

Part I: Understanding Data

- What is data? Populations vs. samples
- Graphical summaries — histograms, scatterplots, and averages
- The importance of variability

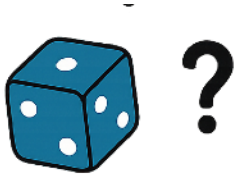
Part II: The Logic of Sampling

- Random sampling and chance variation
- Bias and representativeness
- Sampling distributions (conceptually, no formulas)



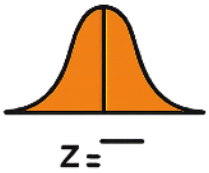
Part III: Probability Fundamentals

- Basic rules of probability
- Independence and conditional probability
- Law of large numbers: what "long-run" really means



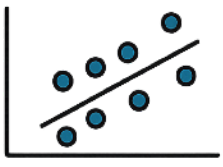
Part IV: The Normal Curve and Standard Scores

- The bell curve and z-scores
- Understanding percentiles and tail probabilities
- Applications to measurement and natural variation



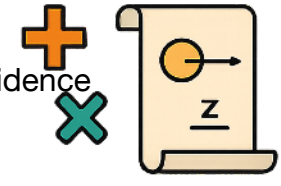
Part V: Correlation and Regression

- Relationship between two variables
- Correlation coefficient intuition
- Regression line and its interpretation (no matrix math)



Part VI: Chance and Uncertainty

- Randomness and the gambler's fallacy
- Expected value, standard error, and the idea of confidence



Part VII: Inference and Hypothesis Testing

- What is statistical inference?
- Confidence intervals and significance (conceptually)
- How to interpret p-values without fear

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Neural Network Design

Upcoming in 2026

(Based on the classic textbook by Hagan, Demuth, Beale and De Jesús)

Live Course Highlights

- **Small group or 1-on-1 learning (1–5 students):** Ensuring deep conceptual clarity and interaction
- **Mathematics made intuitive:** Understand learning rules through visuals and derivations
- **No black-box teaching:** Build every algorithm from first principles
- **Bridging theory and implementation:** Explore Python equivalents for each topic
- **Discussion-based learning** — questions, reasoning, and derivation over rote memorization

Prerequisites for the course:

- Comfortable with basic algebra, calculus, and matrix operations
- Familiarity with Python or MATLAB (helpful but not required)
- Curiosity to understand how learning *actually* happens inside neural networks

Who can benefit from this course?

Students or professionals who already know basic machine learning and want deeper theoretical grounding
Researchers and educators who wish to connect mathematics with modern AI practice
Engineers and programmers interested in the inner mechanics of neural computation
Self-learners who have read about deep learning but never understood *why it works*

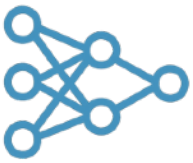
Course outline

Part I: Understanding Data

- Historical perspective of neural computing
- Perceptron learning rule
- Linear neurons and adaptive filters
- Gradient descent and convergence

Part II: Multilayer Networks

- Backpropagation derivations
- Network architectures and activation functions
- Regularization, overfitting, and generalization

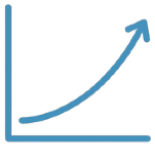


Part III: Specialized Networks

- Radial Basis Function (RBF) networks
- Hopfield networks and associative memory
- Kohonen self-organizing maps (SOM)
- Learning vector quantization (LVQ)

Part VI: Optimisation and Applications

- Training heuristics and performance surfaces
- Early stopping, normalization, and error analysis
- Case studies and small projects



Outcome

By the end of the course, you will:

- Derive and explain key neural network algorithms mathematically
- Understand how backpropagation truly works
- Connect classical neural theory with modern AI practice
- Be prepared to read research papers with confidence

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Mathematics for Machine Learning

Upcoming in 2026

(Based on the textbook by Deisenroth, Faisal and One)

Live Course Highlights

Interactive whiteboard sessions: Explore linear algebra, calculus, and optimization visually
Mathematics for understanding, not proving: Build conceptual clarity, not theorem-chasing
Connections to ML and neural networks: Every topic linked to its practical role in AI
1-on-1 or small group learning (1–5 students): For deep discussion and problem-solving
Guided problem sets: Work through curated examples from the textbook and beyond

Prerequisites for the course:

- Comfort with high-school mathematics and algebra
- No prior coding or ML experience required
- Curiosity to understand why machine learning works, not just how

Who can benefit from this course?

- **Students and professionals** aiming to enter data science or AI with strong mathematical grounding
- **Researchers and educators** seeking to refresh or formalize their math foundations
- **Self-learners** who've used ML libraries but wish to understand the equations underneath
- **Anyone who enjoys math applied to real-world problems**

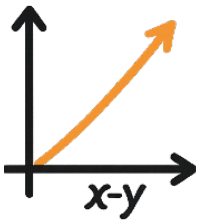
Course outline

Part I: Linear Algebra

- Vectors
- Matrices
- Eigenvalues
- Transformations

Part II: Analytical Geometry

- Projections
- Distances
- Orthogonality

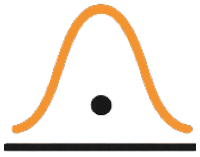


Part III: Matrix Calculus

- Gradients in learning algorithms
- Jacobians in learning algorithms

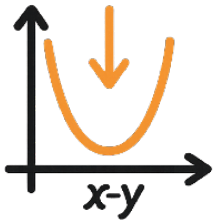
Part VI: Probability and Statistics

- Distributions
- Expectations
- Uncertainty



Part V: Optimization

- Least squares
- Convexity
- Gradient descent



Outcome

By the end of the course, you will:

- Build deep intuition for the math that drives modern ML and AI
- Translate abstract math into practical algorithmic understanding
- Be ready to learn — or re-learn — machine learning with total clarity

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Choose Your Learning Path with Learndataa

Live Mentorship Program (Recommended)

Live Mentorship

- **Duration:** ~6 to 8 months (Live)
- **Format:** 1-on-1 or small group (up to 5 learners)
- **Schedule:** 4 days/week · 1 hour/day · via Zoom/Google Meet
- **Highlights:** Personalized projects, coding problems, portfolio & career guidance
- **Fees:** *2026 enrolment details available upon request*

💬 *Best suited for learners who want direct feedback, accountability, and mentorship for a career in Data Analytics or Data Science.*

Self-Paced Learning (Free on YouTube)

Self-Paced YouTube

- **Duration:** Learn at your own pace
- **Platform:** Learndataa on YouTube
- **Includes:** Complete Python and data analytics foundations
- **Fees:** Free

💬 *Perfect for self-motivated learners who prefer to explore concepts independently before joining live mentorship.*

Udemy Courses

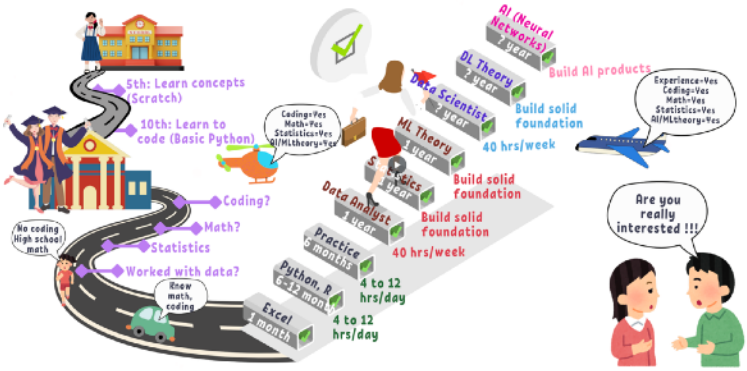
Udemy

- **Duration:** Learn at your own pace
- **Format:** Pre-recorded lessons and coding exercises
- **Platform:** Learndataa on Udemy

💬 *Ideal for learners seeking structured, affordable, and flexible access to your open-source curriculum.*

How Can Learndataa Help You Enter Data Science?

We provide training in essential data analytics and machine learning skills, offering hands-on experience with real-world data to prepare you for practical challenges in the field.



Why Pursue Data Analysis, Data Science and Artificial Intelligence?

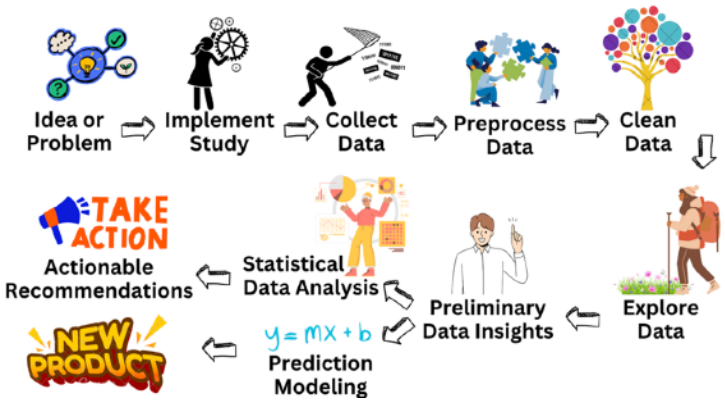
As data continues to grow exponentially in today's world, the demand for professionals who can analyze and derive insights from it is rapidly increasing. Data Science and AI are at the forefront of driving innovation, solving complex problems, and making informed decisions across industries.

Is it for me?

Students and working professionals, whether from IT or non-IT backgrounds, who are eager to develop skills in data science are welcome to apply. Contact us, and we will help identify a training program that best suits your academic background and needs.

Project-Based Consultancy Services with Learndataa

We welcome freelance projects in Data Science. Contact us for a free initial consultation to explore how we can assist you with your project or business needs. As feasible we try to assist in data collection, data preprocessing, data visualization, data dashboards, exploratory data analysis, statistical data analysis, prediction modeling using traditional machine learning as well as neural networks in deep learning.



Other services offered?

Contact Today!

- Guidance for Master's and Doctoral thesis projects
- Statistical data analysis support
- Guidance on writing technical manuscripts for publication
- Teaching data science to high school students
- Webinars and Workshops on various topics in data science for companies, universities, and high school (available on-site or online)

Hourly rates may apply.

Dr. Nilesh P. Ingle

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LinkedIn: linkedin.com/in/nileshingle
Publications: https://scholar.google.com/citations?user=Ur0ByBYAAAAJ&hl=en
Experience: Over 20 years of expertise in diverse areas of data science, including [specific areas, e.g., machine learning, data analysis, visualization, etc.].

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