

Day	Topic	Sub Topic
1	Introduction	Introduction Overview of AI, ML, DL Artificial Intelligence Evolution Find out where AI, ML, DL is applied in Technology and Science. Applications in real scenarios.
1	Mathematical Foundations	Dependence and Independence, Conditional Probability, Bayes's Theorem, Random Variables, Continuous Distributions, The Normal Distribution
1	Hands on	Python setup and installations
2	Prepare Your Data For Machine Learning	Data Transforms Rescale Data Standardize Data Normalize Data Binarize Data Feature Selection
2	Introduction to Python	Introduction to Python
2	Working with Data	Reading Files, Scraping the Web, Cleaning, Munging and Manipulating Bar Charts, Line Charts, Scatterplots
3	Statistics: Describing a Single Set of Data	Correlation and Causation
3	Supervised Machine Learning	Regression Classification Generalization, Overfitting and Underfitting
3	Unsupervised Machine Learning	Challenges in unsupervised learning
4	Supervised Machine Learning Algorithms	Linear models k-Nearest Neighbor Naive Bayes Classifiers Decision trees Bagging and Boosting
4	Supervise ML - Classification	Classification - Logistic Regression, Sigmoid Function
5	Deep Learning	General introduction of Neural Networks-Learning And Generalization, Overview of Deep Learning
6	Supervised ML - Regression	Linear Regression
6	Unsupervised ML - Clustering	k-Means clustering
7	Perception	Problems related to * Text * Images * Speech

8	Classical AI	<p>Search Algorithms in AI</p> <ul style="list-style-type: none"> * defining a search problem * Tree Search versus Graph Search * uninformed search: depth-first, breath-first, and variants * informed search: best-first, A* * comparing strategies
9	Evaluating ML Algorithms	<ul style="list-style-type: none"> * Split into Train and Test Sets * K-fold Cross Validation * Leave One Out Cross Validation * Repeated Random Test-Train Splits * Understand different error metrics such as MSE and MAE in the context of Machine Learning. * Practice Advice on Which Techniques to Use and When for specific scenarios
10	Planning	<p>Planning</p> <ul style="list-style-type: none"> * Planning under Uncertainty * Markov Decision Processes * Partially Observable MDPs
10	Industry Perspective	Industry Talk
10	Closing	Closing Remarks