Here's a detailed breakdown of the "Ultimate Job Ready Data Science Course" by CodeWithHarry, including the content covered under each lecture section as listed on the course page:

📘 1. Introduction to Data Science (4 lectures – 28 min)

- What is Data Science?
- Applications of Data Science
- Tools used in Data Science
- Career paths and roadmap

🛠️ 2. Understanding the Conda Environment (6 lectures – 37 min)

- Installing Anaconda
- Creating and managing environments
- Using Jupyter Notebook
- Package management with Conda

🖌️ 3. Python Refresher (19 lectures – 137 min)

- Variables, data types, and operators
- Control flow (if, loops)
- Functions and modules
- File handling
- Exception handling
- Object-oriented programming basics

🧪 4. Project 1 – Coders of Delhi (4 lectures – 59 min)

- Real-world data cleaning
- Exploratory data analysis
- Visualization and insights
- Final report generation

🕐5. Data Analysis using NumPy (7 lectures – 87 min)

- Arrays and operations
- Indexing and slicing
- Broadcasting
- Mathematical functions
- Aggregations

📊6. Data Analysis using Pandas (10 lectures – 127 min)

- Series and DataFrames
- Reading/writing CSV, Excel
- Filtering and sorting
- GroupBy and aggregation
- Handling missing data

🕐7. Data Visualization with Matplotlib & Seaborn (10 lectures – 137 min)

- Line, bar, scatter plots
- Histograms and box plots
- Styling and customization
- Heatmaps and pair plots

🧢8. Data Collection Techniques (5 lectures – 67 min)

- Web scraping basics
- APIs and requests
- Reading from databases
- Real-time data feeds

🧮9. SQL for Data Science (21 lectures – 196 min)

- SELECT, WHERE, JOIN
- GROUP BY, HAVING
- Subqueries and views
- Window functions
- SQL project walkthrough

🕐10. Probability (7 lectures – 70 min)

- Basic probability rules

- Conditional probability
- Bayes' theorem
- Combinatorics

📈11. Probability Distributions & CLT (5 lectures – 35 min)

- Normal, binomial, Poisson distributions
- Central Limit Theorem
- Sampling techniques

🏏12. Machine Learning for Data Scientists (5 lectures – 61 min)

- Supervised vs unsupervised learning
- Model evaluation
- Bias-variance tradeoff

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13. Types of ML Algorithms (5 lectures – 34 min)

- Regression, classification
- Clustering
- Decision trees, SVMs

⚙️14. Practical ML using Scikit-learn (20 lectures – 220 min)

- Data preprocessing
- Model training and testing
- Hyperparameter tuning
- Pipelines and deployment

🧬15. Deep Learning & Neural Networks (8 lectures – 75 min)

- Perceptrons and activation functions
- Forward and backward propagation
- Building neural networks with TensorFlow/Keras

🕐16. Web Development for Data Scientists (12 lectures – 88 min)

- Flask basics
- Creating dashboards
- Integrating ML models with web apps

📰17. Large Language Models (4 lectures – 37 min)

- What are LLMs?
- Using OpenAI APIs
- Prompt engineering basics

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18. Leveraging AI as a Data Scientist (2 lectures – 15 min)

- AI tools for productivity
- Automating workflows

🗂️19. Git for Data Scientists (14 lectures – 140 min)

- Git basics and setup
- Version control workflows
- Branching and merging
- GitHub collaboration

📊20. Project 2 – RAG-based AI Teaching Assistant (16 lectures – 181 min)

- Retrieval-Augmented Generation (RAG)
- Building a chatbot with LLMs
- Integrating vector databases
- Final deployment
