

DATA ANALYST MASTER COURSE

Turn Data Into Clear Insights & Better Decisions

Learnpeakcoursely.com | A practical, beginner-friendly program covering spreadsheets, SQL, statistics, visualization, dashboards, business analysis, and portfolio projects.

Course Overview

This course introduces the complete data-analysis workflow: asking the right business questions, collecting and preparing data, exploring patterns, writing queries, calculating useful metrics, creating visualizations, communicating insights, and making recommendations. Learners practice the skills needed to support marketing, sales, finance, operations, product, customer, and management teams.

Learning Outcomes

- Understand how data analysts turn business questions into measurable analysis tasks.
- Clean, organize, validate, and transform datasets for reliable analysis.
- Use spreadsheets for formulas, lookups, conditional logic, pivot tables, and summaries.
- Write SQL queries to filter, join, aggregate, and analyze relational data.
- Apply practical descriptive statistics and interpret common analytical measures.
- Create clear charts, dashboards, and reports for technical and non-technical audiences.
- Identify trends, anomalies, segments, and relationships without overstating conclusions.
- Build portfolio-ready projects that demonstrate an end-to-end analytical workflow.

Module 1 — Data Analytics Foundations

- **What analysts do:** gather evidence, answer business questions, monitor performance, investigate problems, and communicate findings.
- **Common data types:** numerical, categorical, dates/times, text, identifiers, transactional data, and event data.
- **Analysis workflow:** define → collect → clean → explore → analyze → visualize → communicate → recommend → monitor.
- **Business questions:** frame questions around outcomes such as revenue, retention, conversion, cost, quality, productivity, or customer satisfaction.
- **Data quality:** accuracy, completeness, consistency, validity, uniqueness, timeliness, and appropriate granularity.

SPREADSHEETS, SQL & DATA PREPARATION

Module 2 — Spreadsheet Analytics

- **Core formulas:** SUM, AVERAGE, COUNT, MIN, MAX, IF, AND, OR, ROUND, and conditional aggregation.
- **Lookups:** use modern lookup functions or equivalent methods to connect tables and retrieve related information.
- **Cleaning:** identify duplicates, blanks, inconsistent categories, invalid dates, unexpected values, and formatting problems.
- **Pivot tables:** summarize data by category, date, region, product, customer segment, or other dimensions.
- **Practical outputs:** KPI trackers, monthly reports, budget analyses, sales summaries, and simple dashboards.

Module 3 — SQL for Data Analysts

- **SELECT & WHERE:** choose fields and filter records based on business conditions.
- **GROUP BY & aggregation:** calculate counts, totals, averages, minimums, maximums, and other summaries.
- **JOINS:** combine related tables while understanding keys, one-to-many relationships, and duplicate-row risks.
- **CASE:** create business categories and conditional logic directly in queries.
- **Dates:** analyze daily, weekly, monthly, quarterly, or year-over-year performance.
- **Window functions:** compare rows, rank records, calculate running totals, and analyze changes across groups.
- **Query quality:** use readable formatting, meaningful aliases, validation checks, and filters that prevent accidental overcounting.

Module 4 — Data Cleaning & Preparation

- Profile a dataset before analyzing it: row count, column types, missingness, unique values, ranges, and suspicious records.
- Standardize categories, dates, units, names, and identifiers before aggregation.
- Decide how to handle missing values based on their meaning rather than automatically replacing them.
- Investigate outliers and anomalies; distinguish data errors from legitimate unusual events.
- Document transformations so another analyst can understand how the final dataset was produced.
- Validate totals and sample records after major transformations.

Practice Exercise

Sales dataset challenge: clean a fictional sales table, connect customers to orders, calculate monthly revenue and average order value, identify the highest-value segments, and produce three findings supported by evidence.

STATISTICS, VISUALIZATION & DASHBOARDS

Module 5 — Practical Statistics

- **Descriptive statistics:** mean, median, mode, range, variance, standard deviation, percentiles, and distributions.
- **Central tendency:** use the median when extreme values may distort the mean and understand when each measure is appropriate.
- **Variation:** measure how widely values differ rather than focusing only on the average.
- **Correlation:** identify whether variables move together, while remembering that correlation does not establish causation.
- **Sampling:** understand why sample selection, bias, and sample size affect conclusions.
- **Testing:** understand the purpose of hypotheses, confidence intervals, and statistical significance at a practical level.

Module 6 — Data Visualization

- Choose the chart based on the question: line charts for trends, bars for comparisons, scatter plots for relationships, and maps only when geography adds meaningful insight.
- Use clear titles, units, labels, appropriate scales, and annotations that help the audience understand the message.
- Avoid clutter, unnecessary 3D effects, misleading axes, excessive categories, and decorative visuals that distract from the data.
- Highlight the most important comparison or trend without hiding relevant context.
- Design dashboards around decisions: show the KPIs first, then supporting trends, breakdowns, and exceptions.

Module 7 — KPI & Business Analysis

- **Revenue:** total sales, average order value, growth rate, revenue by segment or channel.
- **Marketing:** impressions, clicks, conversion rate, cost per lead, customer acquisition cost, return on ad spend.
- **Product:** active users, adoption, feature usage, retention, churn, conversion, and funnel performance.
- **Operations:** cycle time, throughput, error rate, utilization, service levels, and cost per transaction.
- **Customer:** retention, repeat purchase, satisfaction, response time, resolution rate, and customer lifetime indicators.

Module 8 — Dashboard & Reporting Workflow

- Start with the audience and decision: what should the reader understand or do after seeing the dashboard?
- Define KPI calculations and time periods before building visuals.
- Create a clean data layer, then build summary tables and charts from validated metrics.
- Add filters only when they help users answer meaningful questions.
- Include a short insight section explaining what changed, why it may have changed, and what action should be considered.

Common Analytical Mistakes to Avoid

- Confusing correlation with causation.
- Reporting percentages without showing the underlying base or denominator.
- Comparing periods with different definitions or incomplete data.
- Removing outliers without understanding their business meaning.
- Using a chart because it looks attractive instead of because it answers the question.
- Presenting a conclusion without documenting assumptions, limitations, or data quality issues.

PORTFOLIO, COMMUNICATION & CAREER READINESS

Module 9 — Communicating Data Insights

- **Lead with the answer:** state the most important finding before presenting supporting detail.
- **Explain impact:** connect the finding to revenue, cost, customer experience, risk, growth, efficiency, or another business outcome.
- **Show evidence:** include the metric, comparison, time period, segment, and relevant visualization.
- **Recommend action:** suggest a realistic next step and explain what should be measured afterward.
- **Know the audience:** executives need concise decisions and implications; operational teams often need more detail and drill-downs.

Module 10 — Essential Data Analyst Tools

- **Spreadsheets:** Excel or equivalent tools for cleaning, calculations, pivot tables, and quick analysis.
- **SQL:** querying relational databases and preparing analysis-ready datasets.
- **Visualization:** dashboard and reporting tools such as Power BI, Tableau, Looker Studio, or equivalent platforms.
- **Programming:** Python or R can extend analysis with automation, statistical work, data manipulation, and reproducible workflows.
- **Collaboration:** documentation, version control, tickets, shared workspaces, and clear handoffs.
- **AI assistants:** useful for brainstorming queries, explaining formulas, drafting documentation, and reviewing approaches—but outputs must be checked against the actual data.

Module 11 — Final Portfolio Project

Complete an end-to-end analysis for a fictional business. Choose a dataset such as e-commerce sales, customer churn, marketing campaigns, employee operations, product usage, or support tickets.

- Write the business problem and 5–8 analytical questions.
- Profile and clean the dataset; document important quality issues.
- Use SQL or spreadsheet methods to calculate core metrics.
- Perform exploratory analysis and identify meaningful trends or segments.
- Build a dashboard with 5–8 relevant KPIs and supporting visuals.
- Write an executive summary with 3–5 evidence-based insights.
- Recommend 3 actions and explain how success should be measured.
- Document assumptions, limitations, definitions, and data sources.

Career-Ready Checklist

- Can turn vague business questions into measurable analytical questions.
- Can clean and validate a dataset before drawing conclusions.
- Can use spreadsheet functions and pivot tables confidently.
- Can write SQL queries with filters, aggregation, joins, and conditional logic.
- Understands practical descriptive statistics and common analytical limitations.
- Can create clear dashboards and explain the story behind the numbers.
- Can communicate insights to non-technical stakeholders.
- Has at least one complete portfolio project demonstrating the full analysis process.

Course Completion Outcome

By completing the lessons, exercises, and final project, learners will have a practical foundation for entry-level data-analysis work and a portfolio artifact they can use to demonstrate their skills. Continued practice with real datasets, business cases, SQL exercises, and dashboard projects will strengthen analytical confidence and job readiness.

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