



Course Content

Course Description:

Netezza designs and markets high-performance data warehouse appliances and advanced analytics applications for uses including enterprise data warehousing, business intelligence, predictive analytics and business continuity planning.

Topics:

Module 1:

Introduction

- SELECT * (All Columns) in a Table
- SELECT Specific Columns in a Table
- Using Good Form
- Using the Best Form for Writing SQL
- Place your Commas in front for better Debugging Capabilities
- Sort the Data with the ORDER BY Keyword
- ORDER BY Defaults to Ascending
- Use the Name or the Number in your ORDER BY Statement
- ORDER BY Defaults to Ascending
- Two Examples of ORDER BY using Different Techniques
- NULL Values sort First in Ascending Mode (Default)
- NULL Values sort Last in Descending Mode (DESC)
- Multiple Sort Keys using Names vs. Numbers
- Major Sort vs. Minor Sorts
- Sorts are Alphabetical, NOT Logical
- Using A CASE Statement to Sort Logically
- How to ALIAS a Column Name
- A Missing Comma can by Mistake become an Alias
- Comments using Double Dashes
- Comments for Multi-Lines
- Comments using Double Dashes for Multiple Lines

Module 2:

The WHERE clause

- The WHERE Clause limits Returning Rows
- Using a Column ALIAS throughout the SQL

- Double Quoted Aliases are for Reserved Words and Spaces
- Character Data needs Single Quotes in the WHERE Clause
- Character Data needs Single Quotes, but Numbers Don't
- NULL means UNKNOWN DATA so Equal (=) won't Work
- Use IS NULL or IS NOT NULL when dealing with NULLs
- NULL is UNKNOWN DATA so NOT Equal won't Work
- Use IS NULL or IS NOT NULL when dealing with NULLs
- Using Greater Than Or EQUAL To (>=)
- AND in the WHERE Clause
- Troubleshooting AND
- OR in the WHERE Clause
- Troubleshooting OR
- OR must utilize the Column Name Each Time
- Troubleshooting Character Data
- Using Different Columns in an AND Statement
- Quiz – How many rows will return?
- Answer to Quiz – How many rows will return?
- What is the Order of Precedence?
- Using Parenthesis to change the Order of Precedence
- Using an IN List in place of OR
- IN List vs. OR brings the same Results
- Using a NOT IN List
- A Technique for Handling Nulls with a NOT IN List
- BETWEEN is Inclusive
- BETWEEN works for Character Data



- LIKE Command uses Wildcards Percent % and Underscore _
- LIKE command Underscore is Wildcard for one Character
- LIKE Command Works Differently on Char Vs Varchar
- Troubleshooting LIKE Command on Character Data
- Quiz – What Data is Left Justified and What is Right?
- Numbers are Right Justified and Character Data is Left?
- Answer – What Data is Left Justified and What is Right?
- An Example of Data with Left and Right Justification
- A Visual of CHARACTER Data vs. VARCHAR Data
- Use the TRIM command to remove spaces on CHAR Data
- TRIM Eliminates Leading and Trailing Spaces
- Escape Character in the LIKE Command changes Wildcards
- Escape Characters Turn off Wildcards in the LIKE Command
- Quiz – Turn off that Wildcard
- ANSWER – To Find that Wildcard

Module 3:**Distinct Vs Group By**

- The Distinct Command
- Distinct vs. GROUP BY
- Rules of Thumb for DISTINCT Vs GROUP BY
- Quiz – How many rows come back from the Distinct Example
- Answer – How many rows come back from the Distinct

Module 4:**Testing Your Knowledge**

- Testing Your Knowledge

Module 5:**Aggregation Function**

- Quiz – You calculate the Answer Set in your own Mind

- Answer – You calculate the Answer Set in your own Mind
- The 3 Rules of Aggregation
- There are Five Aggregates
- Quiz – How many rows come back?
- Troubleshooting Aggregates
- GROUP BY when Aggregates and Normal Columns Mix
- GROUP BY Delivers one row per Group
- GROUP BY Dept_No or GROUP BY 1 the same thing
- Limiting Rows and Improving Performance with WHERE
- WHERE Clause in Aggregation limits unneeded Calculations
- Keyword HAVING tests Aggregates after they are Totaled
- Keyword HAVING is like an Extra WHERE Clause for Totals
- Three types of Advanced Grouping
- GROUP BY Grouping Sets
- GROUP BY Rollup
- GROUP BY Rollup Result Set
- GROUP BY Cube
- GROUP BY CUBE Result Set
- Testing Your Knowledge
- Final Answer to Test Your Knowledge on Aggregates

Module 6:**Join Functions**

- A two-table join using Non-ANSI Syntax
- A two-table join using Non-ANSI Syntax with Table Alias
- Aliases and Fully Qualifying Columns
- A two-table join using ANSI Syntax
- Both Queries have the same Results and Performance
- Quiz – Can You Finish the Join Syntax?
- Answer to Quiz – Can You Finish the Join Syntax?
- Quiz – Can You Find the Error?
- Answer to Quiz – Can You Find the Error?
- Quiz – Which rows from both tables Won't Return?
- Answer to Quiz – Which rows from both tables Won't Return?



- LEFT OUTER JOIN
- LEFT OUTER JOIN EXAMPLE
- RIGHT OUTER JOIN
- RIGHT OUTER JOIN EXAMPLE
- FULL OUTER JOIN
- FULL OUTER JOIN EXAMPLE
- INNER JOIN with Additional AND Clause
- ANSI INNER JOIN with Additional AND Clause
- ANSI INNER JOIN with Additional WHERE Clause
- OUTER JOIN with Additional AND Clause
- OUTER JOIN with Additional WHERE Clause
- OUTER JOIN with Additional AND Clause
- OUTER JOIN with Additional AND Clause Example
- The DREADED Product Join
- The DREADED Product Join
- The Horrifying Cartesian Product Join
- The ANSI Cartesian Join will ERROR
- Quiz – Do these Joins Return the Same Answer Set?
- Answer – Do these Joins Return the Same Answer Set?
- The CROSS JOIN
- The CROSS JOIN Answer Set
- The Self Join
- The Self Join with ANSI Syntax
- Quiz – Will both queries bring back the same Answer Set?
- Answer – Will both queries bring back the same Answer Set?
- Quiz – Will both queries bring back the same Answer Set?
- Answer – Will both queries bring back the same Answer Set?
- How would you Join these two tables?
- How would you Join these two tables? You Can't...Yet!
- An Associative Table is a Bridge that Joins Two Tables
- Quiz – Can you Write the 3-Table Join?
- Answer to Quiz – Can you Write the 3-Table Join?
- Quiz – Can you Write the 3-Table Join to ANSI Syntax?
- Answer – Can you Write the 3-Table Join to ANSI Syntax?
- Quiz – Can you Place the ON Clauses at the End?
- Answer – Can you Place the ON Clauses at the End?
- The 5-Table Join – Logical Insurance Model
- The Nexus Query Chameleon
- The 5-Table Join ANSI SQL Created by Nexus
- The 5-Table Join With ON Clauses at END
- The Join Tab of Nexus
- The COLUMNS Tab of Nexus
- The 6-Join Functions
- A two-table join using Non-ANSI Syntax
- A two-table join using Non-ANSI Syntax with Table Alias
- Aliases and Fully Qualifying Columns
- A two-table join using ANSI Syntax
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- Answer to Quiz – Can You Find the Error?
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- LEFT OUTER JOIN EXAMPLE
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- ANSI INNER JOIN with Additional AND Clause
- ANSI INNER JOIN with Additional WHERE Clause
- OUTER JOIN with Additional AND Clause
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- OUTER JOIN with Additional AND Clause Example
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- The DREADED Product Join
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- Answer – Do these Joins Return the Same Answer Set?
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- The CROSS JOIN Answer Set
- The Self Join
- The Self Join with ANSI Syntax
- Quiz – Will both queries bring back the same Answer Set?
- Answer – Will both queries bring back the same Answer Set?
- Quiz – Will both queries bring back the same Answer Set?

Module 7:**OLAP Functions**

- The ANSI Version of CSUM
- The ANSI Version of CSUM – The Sort Explained
- The ANSI CSUM – Rows Unbounded Preceding Explained
- The ANSI CSUM – Making Sense of the Data
- The ANSI CSUM – Making Even More Sense of the Data
- The ANSI CSUM – The Major and Minor Sort Key(s)
- The ANSI CSUM – Getting a Sequential Number
- Troubleshooting The ANSI OLAP on a GROUP BY
- The ANSI OLAP – Reset with a PARTITION BY Statement
- PARTITION BY only Resets a Single OLAP not ALL of them
- The Moving Average
- The ANSI Moving Window is Current Row and Preceding
- How ANSI Moving Average Handles the Sort
- Quiz – How is that Total Calculated?
- Answer to Quiz – How is that Total Calculated?
- Quiz – How is that 4th Row Calculated?
- Answer to Quiz – How is that 4th Row Calculated?
- Moving Average every 3-rows Vs a Continuous Average
- Partition By Resets an ANSI OLAP
- Moving Difference
- Moving Difference using ANSI Syntax with Partition By

- RANK using ANSI Syntax Defaults to Ascending Order
- Getting RANK using ANSI Syntax to Sort in DESC Order
- RANK() OVER and PARTITION BY
- PERCENT_RANK() OVER
- PERCENT_RANK() OVER with 14 rows in Calculation
- PERCENT_RANK() OVER with 21 rows in Calculation
- Quiz – What Cause the Product_ID to Reset
- Answer to Quiz – What Cause the Product_ID to Reset
- COUNT OVER for a Sequential Number
- COUNT OVER Without Rows Unbounded Preceding
- Quiz – What caused the COUNT OVER to Reset?
- Answer to Quiz – What caused the COUNT OVER to Reset?
- The MAX OVER Command
- MAX OVER with PARTITION BY Reset
- Troubleshooting MAX OVER
- The MIN OVER Command
- Troubleshooting MIN OVER
- Quiz – Fill in the Blank
- Answer to Quiz – Fill in the Blank
- The Row_Number Command
- Quiz – How did the Row_Number Reset?
- Quiz – How did the Row_Number Reset?

Module 8:**Derived Tables**

- There are Three types of Temporary Tables
- CREATING A Derived Table
- Naming the Derived Table
- Aliasing the Columns of the Derived Table
- Multiple Ways to Alias the Columns in a Derived Table
- CREATING A Derived Table using the WITH Command
- Naming the Derived Table using the WITH Command
- Naming the Derived Table Columns using WITH
- The Same Derived Query shown Three Different Ways



- A Derived Table that Joins to an Existing Table
- Quiz - Answer the Questions
- Answer to Quiz - Answer the Questions
- Clever Tricks on Aliasing Columns in a Derived Table
- An Example of Two Derived Tables in a Single Query

Module 9:**Sub-query Functions**

- An IN List is much like a Subquery
- An IN List Never has Duplicates – Just like a Subquery
- An IN List Ignores Duplicates
- The Subquery
- How a Basic Subquery Works
- The Final Answer Set from the Subquery
- Quiz- Answer the Difficult Question
- Answer to Quiz- Answer the Difficult Question
- Should you use a Subquery of a Join?
- Quiz- Write the Subquery
- Answer to Quiz- Write the Subquery
- Quiz- Write the More Difficult Subquery
- Answer to Quiz- Write the More Difficult Subquery
- Quiz- Write the Subquery with an Aggregate
- Answer to Quiz- Write the Subquery with an Aggregate
- Quiz- Write the Correlated Subquery
- Answer to Quiz- Write the Correlated Subquery
- The Basics of a Correlated Subquery
- The Top Query always runs first in a Correlated Subquery
- The Bottom Query runs Last in a Correlated Subquery
- Quiz- Who is coming back in the Final Answer Set?
- Correlated Subquery Example vs. a Join with a Derived Table
- Correlated Subquery that Finds Duplicates
- Quiz- Write the NOT Subquery
- Answer to Quiz- Write the NOT Subquery
- Quiz- Write the Subquery using a WHERE Clause
- Answer to Quiz- Write the Subquery using a WHERE Clause
- Quiz- Write the Subquery with Two Parameters

- Answer to Quiz- Write the Subquery with Two Parameters
- How the Double Parameter Subquery Works
- More on how the Double Parameter Subquery Works
- Quiz – Write the Triple Subquery
- Answer to Quiz – Write the Triple Subquery
- IN is equivalent to =ANY
- Using a Correlated Exists
- How a Correlated Exists matches up
- The Correlated NOT Exists
- The Correlated NOT Exists Answer Set
- Quiz – How many rows come back from this NOT Exists?
- Answer – How many rows come back from this NOT Exists?

Module 10:**Substrings and Positioning Functions**

- The CHARACTERS Command Counts Characters
- The CHARACTERS Command – Spaces can Count too
- Troubleshooting the CHARACTERS Command
- TRIM for Troubleshooting the CHARACTERS Command
- OCTET_LENGTH
- The TRIM Command trims both Leading and Trailing Spaces
- Trim and Trailing is Case Sensitive
- Trim and Trailing works if Case right
- Trim Combined with the CHARACTERS Command
- How to TRIM only the Trailing Spaces
- How to TRIM Trailing Letters
- A Visual Example of How to TRIM Trailing Letters
- How to TRIM Trailing Letters and use CHARACTER_Length
- The SUBSTRING Command
- How SUBSTRING Works
- How SUBSTRING Works with NO ENDING POSITION
- Using SUBSTRING to move Backwards
- How SUBSTRING Works with a Starting Position of Zero



- How SUBSTRING Works with a Starting Position of -1
- How SUBSTRING Works with an Ending Position of 0
- An Example using SUBSTRING, TRIM and CHAR Together
- SUBSTRING and SUBSTR are equal, but use different syntax
- The POSITION Command finds a Letters Position
- The POSITION Command is brilliant with SUBSTRING
- Quiz – Name that SUBSTRING Starting and For Length
- Answer to Quiz – Name that Starting and For Length
- Quiz – Find that SUBSTRING Starting Position
- Answer to Quiz – Find that SUBSTRING Starting Position
- Quiz – Find that SUBSTRING Starting FOR Length
- Answer to Quiz – Find that Starting FOR Length
- Quiz – Why Did only one Row Return
- Answer to Quiz – Why Did only one Row Return
- Concatenation
- Concatenation and SUBSTRING
- Four Concatenations Together
- Troubleshooting Concatenation

Module 11:**Interrogating the Data**

- Quiz – Fill in the Answers for the NULLIF Command
- Quiz – Fill in the Answers for the NULLIF Command
- The COALESCE Command
- The COALESCE Answer Set
- The Coalesce Quiz
- Answers to the Coalesce Quiz
- The Basics of CAST (Convert And STore)
- Some Great CAST (Convert And STore) Examples
- Some Great CAST (Convert And STore) Examples
- Some Great CAST (Convert And STore) Examples
- The Basics of the CASE Statements
- The Basics of the CASE Statement shown Visually
- Valued Case Statement Vs Searched Case Statement
- Valued Case Statement

- Searched Case Statement
- Searched Case Statement
- When NO ELSE is present in CASE Statement
- When NO ELSE is present in CASE Statement
- When an ELSE is present in CASE Statement
- When NO ELSE is present in CASE Statement
- When an Alias is NOT used in a CASE Statement
- When an Alias is NOT used in a CASE Statement
- Combining Searched Case and Valued Case
- A Trick for getting a Horizontal Case
- Nested Case
- Put a CASE in the ORDER BY

Module 12:**View Functions**

- Creating a Simple View
- Basic Rules for Views
- How to Modify a View
- Exceptions to the ORDER BY Rule inside a View
- Views sometimes CREATED for Row Security
- Another Way to Alias Columns in a View CREATE
- Resolving Aliasing Problems in a View CREATE
- Resolving Aliasing Problems in a View CREATE
- Resolving Aliasing Problems in a View CREATE
- CREATING Views for Complex SQL such as Joins
- WHY certain columns need Aliasing in a View
- Aggregates on View Aggregates
- Altering A Table
- Altering A Table After a View has been Created
- A View that won't work after an ALTER
- Troubleshooting a View

Module 13:**Set Operators Functions**

- Rules of Set Operators
- INTERSECT Explained Logically
- INTERSECT Explained Logically
- UNION Explained Logically
- UNION Explained Logically
- UNION ALL Explained Logically
- UNION Explained Logically
- EXCEPT Explained Logically
- EXCEPT Explained Logically
- Minus Explained Logically



- Minus Explained Logically
- Testing Your Knowledge
- Testing Your Knowledge
- An Equal Amount of Columns in both SELECT List
- Columns in the SELECT list should be from the same Domain
- The Top Query handles all Aliases
- The Bottom Query does the ORDER BY (a Number)
- Great Trick: Place your Set Operator in a Derived Table
- UNION Vs UNION ALL
- Using UNION ALL and Literals
- A Great Example of how EXCEPT works
- USING Multiple SET Operators in a Single Request
- Changing the Order of Precedence with Parenthesis
- Using UNION to be same as GROUP BY GROUPING SETS
- Using UNION to be same as GROUP BY ROLLUP
- Using UNION to be the same as GROUP BY Cube
- Using UNION to be same as GROUP BY Cube

Module 14:**Date Functions**

- Date, Time, and Timestamp Keywords
- Add or Subtract Days from a date
- The to_char command
- A Summary of Math Operations on Dates
- Using a Math Operation to find your Age in Years
- Find What Day of the week you were Born
- The ADD_MONTHS Command
- Using the ADD_MONTHS Command to Add 1-Year
- Using the ADD_MONTHS Command to Add 5-Years
- The EXTRACT Command
- EXTRACT from DATES and TIME
- EXTRACT with DATE and TIME Literals
- EXTRACT of the Month on Aggregate Queries
- A Side Title example with Reserved Words as an Alias
- Implied Extract of Day, Month and Year
- DATE_PART Function
- DATE_PART Function using an ALIAS
- DATE_TRUNC Function
- DATE_TRUNC Function using TIME

- DATE_TRUNC Function
- DATE_TRUNC Function using TIME
- MONTHS_BETWEEN Function
- MONTHS_BETWEEN Function in Action
- ANSI TIME
- ANSI TIMESTAMP
- Netezza TIMESTAMP Function
- Netezza TO_TIMESTAMP Function
- Netezza NOW() Function
- Netezza TIMEOFDAY Function
- Netezza AGE Function
- Time Zones
- Setting Time Zones
- Using Time Zone
- Using Intervals
- Troubleshooting The Basics of a Simple Interval
- Interval Arithmetic Results
- A Date Interval Example
- A Time Interval Example
- A - DATE Interval Example
- A Complex Time Interval Example using CAST
- A Complex Time Interval Example using CAST
- The OVERLAPS Command
- An OVERLAPS Example that Returns No Rows
- The OVERLAPS Command using TIME
- The OVERLAPS Command using a NULL Value

Module 15:**Your Nexus Query Chameleon**

- The Old Nexus Logo
- The New Nexus Logo
- Watch the Video on the new Nexus Super Join Builder
- How to Customize your System Tree View
- Introducing the new Nexus Super Join Builder
- Define your Joins and tell Nexus to “Add and Remember Me”
- Nexus knows what Tables Join together
- Nexus Presents Tables and their columns in Color
- Nexus Builds your SQL Automagically
- Nexus can Cube a Table and Join to Everything Possible
- The Cube SQL created Automagically
- Manipulate the Columns with the Columns Tab



- Single Click and ORDER BY using the Sort Tab
- Using the Joins Tab of Nexus
- The SQL Tab reflects the changes we make in all other Tabs
- WHERE Tab shows Tables Indexes
- The Answer Set Tab shows the Results
- The Metadata Tab shows Metadata
- Nexus Makes a View look like a Table
- Nexus Joins Views to other Views in seconds
- Nexus can Cube a View and Join to all other related Views
- Nexus Cubes Views in Seconds
- The Cube SQL created on Views is done Automagically
- Views with the Underlying Indexes of the Base Tables
- Compare DDL with SmartSync
- Play Games and Learn Teradata SQL
- Play Games and Learn Teradata Architecture
- Watch the Video on India

Module 15 continued:**Your Nexus Query Chameleon**

- WHERE Tab shows Views Underlying Base Table Indexes
- After an Answer Set Returns you can do many things
- After an Answer Set Returns Perform OLAP Calculations
- After an Answer Set Returns you can Graph and Chart
- Bisualize
- Bisualize Builds Dynamic Charts
- Saving an Answer Set in another Format
- Sandbox – How to Create a Sandbox (1 of 5)
- How to Compress the Tables in an Entire Database
- How to Compress A Single Table
- Compression Reports
- Let Nexus Build your Load Scripts with SmartScript
- SmartScript Building a FastLoad
- The Teradata DBA Launchpad
- Convert Teradata DDL to Another Database Vendor
- Replicate Data from One Teradata System to Another
- Compare and Synchronize with SmartSync
- Compare Data on Two tables with SmartSync
- Compare Data and See the Results with SmartSync
- Synchronize the Data with SmartSync