

## WTCS Repository

# Program Design

50-156-1 DATA ANALYST APPRENTICE

### Program Information

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| --- | --- | --- |
|  | CIP Code | 52.1301 |

Description

The primary role of a Data Analyst Apprentice is to collect and organize data to provide business insight. Data analysts are typically involved with selecting, integrating, querying, and aggregating data, and conducting a range of analytical studies on that data. They work across a variety of projects, providing technical data solutions to a range of stakeholders/customers issues. They document and report the results of data analysis activities to improve business performance. They have a good understanding of data structures, database systems, and data processing and manipulation skills using analytical tools to undertake a range of different types of analyses.

External Requirements

APPRENTICESHIP TRAINING STANDARDS

* 2-year apprenticeship under the hybrid model (both time-based and competency-based)
* Total of 4360 hours
* 360 hours of paid related instruction
* Complete Transition to Trainer course in the final year

Entry Requirements

Registered Wisconsin Apprentice

DACUM Information

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Title | | IT-Data Analyst Apprentice DACUM | | |
| Sponsoring Organization | | Bureau of Apprenticeship Standards, DWD and Wisconsin Technical College System | | |
| DACUM Date | | August 3, 2017 at Children’s Hospital Clinic, Mequon, WI, Finalized on September 13, 2017 | | |
| Organized By | | Cindy Anderson, BAS, WI Department of Workforce Development  Nancy Nakkoul, WTCS | | |
| DACUM Panel of Experts | | | |
| Participant | Title | | Organization |
| Chris Cantwell | Director of Information Technology | | Hellermann Tyton, Milwaukee, WI |
| Bharat Chitnavis | Director Healthcare Analytics | | Froedtert & the Medical College of WI |
| Abby Dexter, MSPA BS | Director Business Intelligence/Data Warehousing | | Children’s Hospital of WI, Milwaukee, WI |
| Calvin Friedenfels | Data Architect | | Berkshire Hathaway, Stevens Point, WI |
| Tom Hilke | Application Analyst-Data Analytics | | Aspirus Hospital, Wausau, WI |
| Jacqueline Johnson | Senior Program Data Analyst | | Children’s Hospital of WI, Milwaukee, WI |
| Rashi Khosla | President | | Mars Solutions Group, Wauwatosa, WI |
| Ruth Schwandt | Business Intelligence Team Lead | | Bemis Company, Neenah, WI |
| Kerry Sparks | Business Intelligence Manager | | Security Health Plan, Marshfield, WI |

### Program Outcomes

|  |  |
| --- | --- |
| 1 | Create technical specifications |
| 2 | Perform data integration |
| 3 | Query data |
| 4 | Analyze data |
| 5 | Present data |

# 50-156-1 IT: Data Analyst Apprentice Related Instruction Model [2017-18]

Description

This program configuration represents a statewide model for class cohorts in the related instruction portion of the IT: Data Analyst apprenticeship. The model outlines related instruction for 2 years (divided into 4 terms).

* Both SQL courses should be front loaded. Potentially in a block (5 days a week) or semi-block (3-4 days a week) format. The courses could be delivered online.
* All other courses delivered either face-to-face or hybrid (both online and face-to-face) delivery.
* Courses are spread across the entire two years of the apprenticeship.

It reflects a total of 360 hours of combined related instruction lecture, demonstration, and hands-on learning aligned with DWD-BAS apprenticeship training standards. This model is designed for class meetings front loaded in the first year of the apprenticeship. This model provides foundational skills apprentices will need in on-the-job learning during the 2 years of their apprenticeship. This model aligns WTCS learning outcomes with relevant industry standards as identified by an industry validated DACUM and Exhibit A work processes approved by the state trade committee. Supporting documentation may be found in the BAS IT: Software Developer Job Book. This curriculum model may be interpreted and implemented by the colleges as required to meet local needs and in support of local work processes by the steering committee and DWD-BAS.

Credits

|  |  |
| --- | --- |
| Total Credits | 10.00 |

## Year 1: Term A

|  |  |  |
| --- | --- | --- |
| Course # | Course Title | Credits |
| 50-156-701 | Introductory SQL | 2 |
| 50-156-702 | Intermediate SQL | 2 |

## Year 1: Term B

|  |  |  |
| --- | --- | --- |
| Course # | Course Title | Credits |
| 50-156-703 | Data Presentation | 3 |

## Year 2: Term A

|  |  |  |
| --- | --- | --- |
| Course # | Course Title | Credits |
| 50-156-704 | Introductory Business Analysis | 1.5 |

## Year 2: Term B

|  |  |  |
| --- | --- | --- |
| Course # | Course Title | Credits |
| 50-156-705 | Introductory ETL | 1.5 |
| 47-455-455 | Transition to Trainer: Your Role as a Journey Worker |  |

### Program Course List

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Number | Title | Credits & Hours | Description | Pre/Corequisites |
| 50-156-701 | Introductory SQL | 2 Credits  72 Hours | The introductory SQL course prepares apprentices to leverage a relational database management system to retrieve data. They will create and execute queries using SQL statements. They will read an Entity-Relationship Diagram to direct the creation of the correct query. | Wisconsin Registered Apprentice |
| 50-156-702 | Intermediate SQL | 2 Credits  72 Hours | The Intermediate SQL course reviews the construction of a SQL query joining multiple tables using both INNER and OUTER joins, subqueries, scalar functions and aggregate functions. Apprentices add, modify and remove data records using DML statements; identify and create appropriate indexes to improve system query performance; and analyze the results for accuracy and completeness as well as review query performance for review and optimization. | Introductory SQL |
| 50-156-703 | Data Presentation | 3 Credits  108 Hours | Introduces data report creation. Apprentices learn data presentation formats and types of reports. Focus is placed on the creation of a variety of reports utilizing industry standard reporting tools. Data findings will be presented verbally and in writing, including through executive summaries. | Introductory SQL |
| 50-156-704 | Introductory Business Analysis | 1.5 Credits  54 Hours | Prepares apprentices to work as liaisons among stakeholders and understand the structure, policies, and operation of an organization. Apprentices use techniques to gather and analyze business requirements using best practices and relevant technologies. Prepares apprentices to function as liaisons with IT and subject matter experts supporting the needs of businesses in a wide variety of industries. | None |
| 50-156-705 | Introductory ETL | 1.5 Credits  54 Hours | Prepares apprentices to extract from unstructured and structured data stores, transform data for usability and readability and load data for consumption. Apprentices use applicable technology and techniques to provide reliable and accurate data for the end user or application. | Intermediate SQL |
| 47-455-455 | Transition to Trainer: Your Role as a Journey Worker | 0 Credits 8 Hours | Apprenticeship training is a collaborative partnership: employer and employee associations, government, and educational institutions each play a part. In reality, most learning takes place through the daily interaction between an apprentice and his/her co-workers. Surveys have shown that the apprentices are least satisfied with the on-the-job portion of their training--particularly the ability of journey level workers and supervisors to pass on their knowledge of the trade.   You have already learned to use the tools of your chosen trade. In this workshop you will be introduced to a new set of basic tools--the tools of a jobsite trainer. You will explore the skills that are necessary to be an effective trainer, discover how to deliver hands-on training, and examine the process for giving useful feedback. During the workshop you will build a Training Toolkit to take back to your work on the job. |  |

50-156-701 Introductory SQL

# Course Outcome Summary

### Course Information

|  |  |  |
| --- | --- | --- |
|  | Description | The introductory SQL course prepares apprentices to leverage a relational database management system to retrieve data. They will create and execute queries using SQL statements. They will read an Entity-Relationship Diagram to direct the creation of the correct query. |
|  | Instructional Level | Technical Diploma |
|  | Total Credits | 2 |
|  | Total Hours | 72 |

Pre/Corequisites

|  |  |
| --- | --- |
| Prerequisite | Wisconsin Registered Apprentice |

### Course Competencies

|  |  |
| --- | --- |
| 1. | Use a SQL-based development toolset |
| 2. | Use data terminology, concepts and data types |
| 3. | Analyze an Entity Relationship (ER) Diagram |
| 4. | Create SQL statements |

50-156-702 Intermediate SQL

# Course Outcome Summary

### Course Information

|  |  |  |
| --- | --- | --- |
|  | Description | The Intermediate SQL course reviews the construction of a SQL query joining multiple tables using both INNER and OUTER joins, subqueries, scalar functions and aggregate functions. Apprentices add, modify and remove data records using DML statements; identify and create appropriate indexes to improve system query performance; and analyze the results for accuracy and completeness as well as review query performance for review and optimization. |
|  | Instructional Level | Technical Diploma |
|  | Total Credits | 2 |
|  | Total Hours | 72 |

Pre/Corequisites

|  |  |
| --- | --- |
| Prerequisite | Introductory SQL |

### Course Competencies

|  |  |
| --- | --- |
| 1. | Create SQL statements |
| 2. | Manipulate data |
| 3. | Analyze query performance |
| 4. | Evaluate query results |

50-156-703 Data Presentation

# Course Outcome Summary

### Course Information

|  |  |  |
| --- | --- | --- |
|  | Description | Introduces data report creation. Apprentices learn data presentation formats and types of reports. Focus is placed on the creation of a variety of reports utilizing industry standard reporting tools. Data findings will be presented verbally and in writing, including through executive summaries. |
|  | Instructional Level | Technical Diploma |
|  | Total Credits | 3 |
|  | Total Hours | 108 |

Pre/Corequisites

|  |  |
| --- | --- |
| Prerequisite | Introductory SQL |

### Course Competencies

|  |  |
| --- | --- |
| 1. | Determine appropriate medium for providing data |
| 2. | Create data reports |
| 3. | Create a static dashboard |
| 4. | Create an interactive dashboard |
| 5. | Present data findings |
| 6. | Write an executive summary |

50-156-704 Introductory Business Analysis

# Course Outcome Summary

### Course Information

|  |  |  |
| --- | --- | --- |
|  | Description | Prepares apprentices to work as liaisons among stakeholders and understand the structure, policies, and operation of an organization. Apprentices use techniques to gather and analyze business requirements using best practices and relevant technologies. Prepares apprentices to function as liaisons with IT and subject matter experts supporting the needs of businesses in a wide variety of industries. |
|  | Instructional Level | Technical Diploma |
|  | Total Credits | 1.5 |
|  | Total Hours | 54 |

Pre/Corequisites

|  |  |
| --- | --- |
| Prerequisite | Wisconsin Registered Apprentice |

### Course Competencies

|  |  |
| --- | --- |
| 1. | Identify stakeholders |
| 2. | Define the question to be answered |
| 3. | Establish the scope of the project |
| 4. | Elicit information when gathering requirements |
| 5. | Gather functional and nonfunctional requirements |
| 6. | Create technical specifications |
| 7. | Create a requirements document |

50-156-705 Introductory ETL

# Course Outcome Summary

### Course Information

|  |  |  |
| --- | --- | --- |
|  | Description | Prepares apprentices to extract from unstructured and structured data stores, transform data for usability and readability and load data for consumption. Apprentices use applicable technology and techniques to provide reliable and accurate data for the end user or application. |
|  | Instructional Level | Technical Diploma |
|  | Total Credits | 1.5 |
|  | Total Hours | 54 |

Pre/Corequisites

|  |  |
| --- | --- |
| Prerequisite | Intermediate SQL |

### Course Competencies

|  |  |
| --- | --- |
| 1. | Extract data from structured data stores |
| 2. | Extract data from unstructured data stores |
| 3. | Examine data for usability |
| 4. | Perform data mapping |
| 5. | Transform data to meet requirements |
| 6. | Load the data into the target destination |
| 7. | Perform ETL testing |

47-455-455 Transition to Trainer: Your Role as a Journey Worker

# Course Outcome Summary

### Course Information

|  |  |  |
| --- | --- | --- |
|  | Description | Apprenticeship training is a collaborative partnership: employer and employee associations, government, and educational institutions each play a part. In reality, most learning takes place through the daily interaction between an apprentice and his/her co-workers. Surveys have shown that the apprentices are least satisfied with the on-the-job portion of their training--particularly the ability of journey level workers and supervisors to pass on their knowledge of the trade.   You have already learned to use the tools of your chosen trade. In this workshop you will be introduced to a new set of basic tools--the tools of a jobsite trainer. You will explore the skills that are necessary to be an effective trainer, discover how to deliver hands-on training, and examine the process for giving useful feedback. During the workshop you will build a Training Toolkit to take back to your work on the job. |
|  | Total Hours | 8 |

### Course Competencies

|  |  |
| --- | --- |
| 1. | Value your role as a journey worker trainer |
| 2. | Serve as a mentor and job coach |
| 3. | Foster a positive work environment by acting as an ally/advocate |
| 4. | Provide hands-on skills training |
| 5. | Provide feedback on apprentice performance |