DATA ANALYST
(Competency-Based)

APPENDIX A

O*NET CODE 15-2031.00

Competency/performance-based apprenticeship occupations are premised on attainment of demonstrated, observable and measurable competencies in lieu of meeting time-based work experience and on-the-job learning requirements. In competency/performance-based occupations apprentices may accelerate the rate of competency achievement or take additional time beyond the approximate time of completion.

This training outline is a minimum standard for Work Processes and Related Instruction. Changes in technology and regulations may result in the need for additional on-the-job or classroom training.

Potential Job Titles: Business Analyst, Business Intelligence

WORK PROCESSES

A. Workplace Orientation

1. Learn and follow employer-specific administrative policies,procedures, safety protocols.
2. Demonstrate familiarity with data science nomenclature and explain Data Analyst's operational role.
3. Articulate and practice employer-specific "work culture" models (if applicable).
4. Complete tutorials (e.g., DataCamp, codecademy, Lynda.com) to attain basic knowledge and skills in common data science software and techniques (e.g., SQL, R, Python, Java, visualization, statistics).

B. Project Intake and Project Management

1. Demonstrate understanding of work intake process.
2. Acquire project management knowledge: e.g., SixSigma, or applicable internal program.
3. Analyze prospective projects: "Understand the ask up front."
4. Communicate with coworkers, clients, users, and management throughout process.
5. Determine documentation needs at process inception.
6. Perform cost benefit analysis.

7. Develop process map.
8. Manage workflow with the aid of project management platforms, such as: SharePoint, Huddle, Confluence, Workfront.

C. Data/Extract, Transform, and Load (ETL)

1. Learn various data and statistical analysis concepts, such as: population, sample, data sets, variables, types of data, i.e. numerical, categorical.
2. Collect (**extract**) data from multiple sources, and ready for submission to workflow.
3. Utilize data manipulation tools, such as Structured Query Language (SQL), Alteryx, and Pentaho to **transform** data into operable format: address and resolve naming conflicts, duplicate records, and different value representations.
4. **Load** data into appropriate tables, where further manipulation may take Place, or final product displayed.

D. Data Visualization

1. Conceptualize data presentation formats for various audiences (clients, customers, internal/external, etc.).
2. Use data visualization software (such as Tableau, Cognos, Qlikview) to capture and re-present data.
3. Develop ability to manipulate and present data in complicated ways.

E. Miscellaneous (Optional)

1. Develop training materials and procedures.
2. Train users to properly use hardware and/or software.
3. Write project reports.
4. Adhere to internal and external communication standards.
5. Utilize presentation software (e.g., PowerPoint) while presenting work.
6. Organize and run meetings.

Approximate Total Hours 1000-2000

Apprentices in Competency-Based Programs shall participate in no fewer than 1,000 documented hours of on-the-job training, and until they have demonstrated a competency for each skill in the Work Processes.

Apprenticeship work processes are applicable only to training curricula for apprentices in approved programs. Apprenticeship work processes have no impact on classification determinations under Article 8 or 9 of the Labor Law. For guidance regarding classification for purposes of Article 8 or 9 of the Labor Law, please refer to https://dol.ny.gov/public-work-and-prevailing-wage

DATA ANALYST

APPENDIX B

RELATED INSTRUCTION

Safety and the Workplace

1. Sexual Harassment Prevention Training – must comply with Section 201-g of the Labor Law
2. Employer Onboarding (if applicable)

Trade Science and Theory

1. Data Science
2. Data Analytics
3. Database Concepts
4. Project Management
5. Logic
6. Probability
7. Statistics and Statistical Methods for Data Science
8. Modeling
9. Data Mining

Trade Skills

1. Project Intake
2. Project Management Software (e.g., Microsft Office Suite, SharePoint)
3. Business Requirements Documents
4. Process Mapping
5. Coding: Open Source and Vendor-specific
6. Operating System Software
7. Data Analysis Software (SQL, Alteryx, Pentaho, etc.)
8. Data Visualization Software (Tableau, Cognos, Qlikview, etc.)

Other Courses As Necessary

At least 144 hours of Related Instruction per year must be available for the apprentice at the time of his/her indenture. However, the apprentice may test out earlier if able to demonstrate competence for each topic on the Related Instruction outline.

Appendix B topics are approved by New York State Education Department.