[1]Utica City School District
Career and Technical Education Program
Data Analytics Pathway
Summary Overview

Focus Overview

This pathway is designed to prepare students for careers and further education and training in the business analytics and data science field, such as data scientist, data analyst, data engineer, or database manager. Students will understand the importance of business analytics in various contexts, explore career options, and learn how business analytics applies to other industries and career fields. Through project-based units, students will learn about database management, and will use data science tools and analytical techniques to answer real-world questions. Students will understand and apply the business analytics workflow of data collection, data cleaning and validation, analysis, visualization and the use of dashboards and reports for presenting data to a variety of stakeholders. Students will learn core statistical concepts and apply them to analyze both quantitative and qualitative data. Students will also utilize various computer applications such as Excel, programming languages like Python, R, SQL, C, C++, Scala, and Java and various visualization and dashboard platforms such as Tableau and Power BI. Students will also develop critical thinking and leadership skills as they collaborate effectively with a team to identify, analyze, and present data. Students will develop clear and accurate communication skills, and an awareness of issues around diversity, data ethics, and social responsibility. Students will also be able to obtain certifications such as Microsoft Office Specialist: Excel Associate, and Microsoft Certified: Power BI Data Analyst Associate, and AWS (Amazon Web Services) Certifications, as well as having opportunities to obtain certification in Python, R, SQL, Scala, Java, C, C++, Power BI, and Tableau.

Additional Learning Opportunities

- **Micro-credentials:** Students may pursue learning experiences and credentials depending on the requirements of the project that they are involved in. Some examples for this pathway include, but are not limited to:
    - Microsoft Office Specialist: Excel Associate
    - Microsoft Certified: Power BI Data Analyst Associate.
    - Programming Languages: Python, R, SQL, Scala, Java, C, C++
    - Dashboard Platforms: Power BI, Tableau
    - AWS (Amazon Web Services) Certifications: AWS Certified Cloud Practitioner, AWS Certified Solutions Architect Associate, AWS Certified Data Analytics Specialty
    - Other relevant certifications as they become available through industry collaborations, teacher certifications and student interest.
- **Summer Bridge Enrichment:** Students will have the opportunity to participate in cross-curricular Summer Bridge programs to enhance and enrich their skills. Students will explore and create solutions that address authentic needs in the school and wider community with the involvement of local industry professionals. Students will build on skills learned during the school year to work collaboratively with students from other pathways and programs.

Integrated High School Academics

TBD

Concurrent Enrollment

Upon successful completion of BM100, students will earn 3 college credits for BM100 Introduction to Business from Mohawk Community College.

[1] *UCSD will offer all Career and Technical Education opportunities without regard to race, color, national origin, sex, or disability. The District will also take steps to assure that the lack of English language skills will not be a barrier to admission and participation in Career and Technical Education programs.

Calendar for Business Analytics Focus

Business Management 100 9th Grade			
1	**2**	**3**	**4**
• Introduction to Classroom Expectations • Introduction to Business Management Pathways and Careers • Using Technology to Manage Information and Communication • Taking Risks and Making Profits within the Dynamic Business Environment • M&T Bank Personal Financial Literacy Module • Understanding Economics and How It Affects Business • Doing Business in Global Markets • M&T Bank Personal Financial Literacy Module • Pathway Check-In • Career Exploration • Career Coaching	• Demanding Ethical and Socially Responsible Behavior • How to Form a Business • Entrepreneurship and Starting a Small Business • M&T Bank Personal Financial Literacy Module • Management and Leadership • Structuring Organizations for Today's Challenges • Production and Operations Management • M&T Bank Personal Financial Literacy Module • Motivating Employees • Human Resource Management: Finding and Keeping the Best Employees • Pathway Check-In • Career Exploration • Career Coaching	• Dealing with Employee - Management Issues • M&T Bank Personal Financial Literacy Module • Marketing: Helping Buyers Buy • Developing and Pricing Good and Services • Distributing Products • M&T Bank Personal Financial Literacy Module • Using Effective Promotions • Understanding Accounting and Financial Information • Pathway Check-In • Career Exploration • Career Coaching	• Financial Management • M&T Bank Personal Financial Literacy Module • Using Securities Markets for Financing and Investing • Opportunities • Money, Financial Institution, and the Federal Reserve • M&T Bank Personal Financial Literacy Module • Pathway Check-In • Career Exploration • Career Coaching • Making Career Pathway Decisions • Final Projects and Presentations
Business Analytics 200 10th Grade			
1	**2**	**3**	**4**
What is the role of data in society? How can data be misleading?	**How can data be organized to share effectively and efficiently? Why might data need to be analyzed using different approaches?**	**Why might multiple conclusions be drawn from a single dataset?**	**What is the importance of accuracy in business analytics? In what ways do technology tools support the work of data analysis?**

• Introduction to Business Analytics
• Careers in Business Analytics: Career and Post-Secondary Education Research
• Communication and Employability Skills
• Data Ethics and Privacy
• Business Analytics, Data Science and Uses of Data
• Business Analytics Fundamentals: Business Analytics Workflow
  o Posing Questions
  o Data Collection
  o Cleaning and Validating Data
• Work-Based Learning: Mentoring, Job Shadowing
	• Business Analytics Fundamentals: Business Analytics Workflow
	  o Modeling and Analyzing Data
	  o Visualizing and Sharing Data
	  o Exploratory Data Analysis (EDA)
	• Work-Based Learning: Mentoring, Job Shadowing
		• Business Analytics Fundamentals: Business Analytics Techniques
		  o Types of Analysis
		  o Statistics for Business Analytics
		  o Levels of Measurement
		• Work-Based Learning: Mentoring, Job Shadowing
			• Business Analytics Fundamentals: Business Analytics Tools
			  o Excel Basics
			  ▪ Data Input and Formatting
			  ▪ Using Formulas
			  ▪ Creating and Interpreting Charts
			  o Introduction to Programming Languages – Python, R, SQL
			  o Certifications: Microsoft Office Specialist: Excel Associate, Microsoft Certified: Power BI Data Analyst Associate, Python, R, SQL
			• Work-Based Learning: Mentoring, Job Shadowing

Business Analytics 300 11th Grade			
1	**2**	**3**	**4**
How can I effectively and ethically use and communicate data implications?		**How do I determine which technology tools to use?**	
● Career Research, Employer and College Visits and Applications ● Employability and Communication: Data Ethics and Regulations ● Business Analytics Fundamentals: Design Skills ● Work-Based Learning: Mentoring, Job Shadowing	● Business Analytics Fundamentals: Visualization and Interpretation ● Work-Based Learning: Mentoring, Job Shadowing	● Business Analytics Fundamentals: Statistical Methods for Analyzing Data ● Work-Based Learning: Mentoring, Job Shadowing	● Business Analytics Fundamentals: Business Analytics Tools o Programming Languages: Python, R, SQL, Scala, Java, C, C++ o Visualization Dashboard Platforms: Power BI, Tableau o Certifications: Microsoft Office Specialist: Excel Associate, Microsoft Certified: Power BI Data Analyst Associate, AWS Certified Cloud Practitioner, Python, R, SQL, Scala, Java, C, C++ ● Work-Based Learning: Mentoring, Job Shadowing
Business Analytics 400 **12th Grade**			
1	**2**	**3**	**4**
How does real world application of data analysis and communication differ from theory?		**How does real world application of data analysis and communication differ from theory?**	
● Career and Education Planning: Applications ● Employability and Communication: Data Ethics and Regulations ● Business Analytics Fundamentals: Presentation and Reporting Skills ● Work-Based Learning: Mentoring, Job Shadowing	● Business Analytics Fundamentals: Business Analytics Workflow ● Work-Based Learning: Internship	● Business Analytics Fundamentals: Statistical Methods for Analyzing Data ● Work-Based Learning: Mentoring, Job Shadowing	● Business Analytics Fundamentals: Business Analytics Tools o Programming Languages: Python, R, SQL, Scala, Java, C, C++ o Visualization Dashboard Platforms: Power BI, Tableau o Certifications: Microsoft Office Specialist: Excel Associate, Microsoft Certified: Power BI Data Analyst Associate, AWS Certified Cloud Practitioner, AWS Certified Solutions Architect Associate, AWS Certified Data Analytics Specialty, Python, R, SQL, Scala, Java, C, C++, Tableau ● Work-Based Learning: Internship