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November 26, 2024

Dr. Sanjay Rai, Secretary  
Maryland Higher Education Commission  
6 North Liberty Street  
Baltimore, MD 21201

Dear Dr. Rai:

Please accept this letter requesting a new program/substantial modification of existing program for the **STEM Transfer, Data Science Concentration, A.S.** We are requesting the approval of this new area of concentration to provide students with the first two years of an interdisciplinary Bachelor of Science degree. This new area of concentration will prepare students to collect, organize, and analyze data to analyze and solve problems. Adding an area of concentration in data science aligns with Wor-Wic Community College's mission to offer "...high quality, affordable educational offerings, professional training, workforce development opportunities and comprehensive student services that strengthen economic growth and improve the quality of life on the Lower Eastern Shore." It also helps supports our vision that "Wor-Wic will be a dynamic leader partnering with the diverse communities of the Lower Eastern Shore to develop a world-class workforce and deliver excellence in education and training" in such rapidly expanding areas of economic growth in well-compensated fields.

**Check #0278677 was mailed on November 22, 2024** with a letter and summary of the changes requested for Wor-Wic Community College. This letter, corresponding coversheet and proposed new curriculum changes are being sent electronically.

Please contact me should you have any questions and/or need further information. Thank you for your time and consideration.

Sincerely,



Kristin L. Mallory, Ed.D.  
Vice President for Academic Affairs



Office Use Only: PP#

**Cover Sheet for In-State Institutions  
New Program or Substantial Modification to Existing Program**

|                                 |                           |
|---------------------------------|---------------------------|
| Institution Submitting Proposal | Wor-Wic Community College |
|---------------------------------|---------------------------|

*Each action below requires a separate proposal and cover sheet.*

- |  |   |
|--|---|
| <input type="radio"/> New Academic Program                 | <input type="radio"/> Substantial Change to a Degree Program            |
| <input checked="" type="radio"/> New Area of Concentration | <input type="radio"/> Substantial Change to an Area of Concentration    |
| <input type="radio"/> New Degree Level Approval            | <input type="radio"/> Substantial Change to a Certificate Program       |
| <input type="radio"/> New Stand-Alone Certificate          | <input type="radio"/> Cooperative Degree Program                        |
| <input type="radio"/> Off Campus Program                   | <input type="radio"/> Offer Program at Regional Higher Education Center |

|  |  |               |                          |
|--|--|---------------|--------------------------|
| Payment <input checked="" type="radio"/> Yes | Payment <input type="radio"/> R*STARS # 0278677        | Payment \$250 | Date Submitted: 11/26/24 |
| Submitted: <input type="radio"/> No          | Type: <input checked="" type="radio"/> Check # 0278677 | Amount:       |                          |

|   |   |              |  |
|---|---|--------------|--|
| Department Proposing Program  | STEM  |              |  |
| Degree Level and Degree Type  | AS  |              |  |
| Title of Proposed Program   | Data Science Concentration  |              |  |
| Total Number of Credits   | 60  |              |  |
| Suggested Codes   | HEGIS: 4902.00  | CIP: 41.9990 |  |
| Program Modality  | <input checked="" type="radio"/> On-campus <input type="radio"/> Distance Education (fully online) <input type="radio"/> Both |              |  |
| Program Resources   | <input checked="" type="radio"/> Using Existing Resources <input type="radio"/> Requiring New Resources                       |              |  |
| Projected Implementation Date <small>(must be 60 days from proposal submission as per COMAR 13B.02.03.03)</small> | <input checked="" type="radio"/> Fall <input type="radio"/> Spring <input type="radio"/> Summer            Year: 2025         |              |  |
| Provide Link to Most Recent Academic Catalog  | URL: <a href="http://catalog.worwic.edu">http://catalog.worwic.edu</a>  |              |  |

|                                     |   |
|-------------------------------------|---|
| Preferred Contact for this Proposal | Name: Kristin L. Mallory, Ed.D.                                     |
|                                     | Title: Vice President for Academic Affairs                          |
|                                     | Phone: (410) 334-2813   |
|                                     | Email: <a href="mailto:kmallory@worwic.edu">kmallory@worwic.edu</a> |

|                           |   |
|---------------------------|---|
| President/Chief Executive | Type Name: Deborah Casey, Ph. D.                            |
|                           | Signature:  Date: 11/26/2024                                |
|                           | Date of Approval/Endorsement by Governing Board: 11/14/2024 |

Revised 1/2021

**ACADEMIC PROGRAM PROPOSAL**  
**STEM Transfer, Data Science Concentration, A.S.**  
**Wor-Wic Community College**

**A. Centrality to Institutional Mission and Planning Priorities:**

**A.1. Description of program and how it relates to the institutional mission.**

Wor-Wic Community College proposes the addition of a Data Science area of concentration (AOC) to the STEM Transfer A.S. degree. The Data Science area of concentration is designed to provide students with the first two years of an interdisciplinary Bachelor of Science degree. This new area of concentration will provide students with the knowledge and the skills needed to collect, organize, and analyze data to gain insights and solve problems. The expansion of our current STEM Transfer A.S. degrees to include an area of concentration in Data Science aligns with the mission of Wor-Wic Community College which is to offer "...high quality, affordable educational offerings, professional training, workforce development opportunities and comprehensive student services that strengthen economic growth and improve the quality of life on the Lower Eastern Shore". Further, the proposed program supports our vision that "Wor-Wic will be a dynamic leader partnering with the diverse communities of the Lower Eastern Shore to develop a world-class workforce and deliver excellence in education and training".

**A.2. How the proposed program supports the institution's strategic goals and evidence that affirms it is an institutional priority.**

Data Scientist occupations are experiencing rapid employment growth and are well-compensated (see B). This new STEM Transfer area of concentration aligns with our current, five-year strategic plan (2022-2027) which identifies "delivering relevant courses and programs" as a priority.

Strategic Priority 3: Increase student success by expanding support services, delivering relevant courses and programs, and providing flexible scheduling.

Additionally, it is a strategic goal to "develop and implement ... strategies that support student and community needs".

Strategic Priority 1: Develop and implement enrollment, retention, and completion strategies to support student and community needs.

**A.3. How the proposed program will be adequately funded for the first five years.**

The proposed program includes predominantly preexisting coursework that is part of our existing STEM Transfer and Computer Studies programs. While the proposed program includes two new courses, these new courses can be offered without adding new full-time faculty or new physical facilities (see section L). Therefore, the program is reliably sustainable using current budgetary support, current personnel, and existing infrastructure.

**A.4. Description of institutional commitment to:**

**a) Ongoing administrative, financial, and technical support of the proposed program**

The STEM Transfer AS degree program area of concentration in Data Science will be administered by the Mathematics and Science Department under the General Education Division with support from the Applied Technologies Department in the Occupational and Emerging Technologies Division. Under this organizational assignment, the heads of these departments will provide direct supervision of the program curriculum, courses, part-time faculty selection and evaluation, budget management, program advisory committee, scheduling courses for each semester, and faculty teaching assignments.

**b) Continuation of the program for a period of time sufficient to allow enrolled students to complete the program.**

In situations when associate degree and certificate programs are suspended leading to terminating the program, Wor-Wic Community College requires department heads, with the assistance of their division dean, to develop teach-out plans. The teach-out plans to assist students to complete [graduate] the program who have completed at least 9 credits that are unique to the program. The teach-out plan includes a by-semester schedule listing when program specific courses will be available for student registration within the upcoming two years, and the list is communicated with enrolled students. Enrolled students also meet with a college advisor to review the student's transcripts to identify other associate degree and certificate programs that will allow the student to have the maximum number of completed courses for a program graduation.

**B. Critical and Compelling Regional or Statewide Need as Identified in the State Plan:**

**B1. Demand and Need for Program Based on Societal Need**

Companies and organizations increasingly rely on data to inform decisions and solve problems, Data Science graduates will be well-positioned for entry into the contemporary workforce. Community colleges are well-positioned to prepare students of all backgrounds for careers in data science because they can offer flexible, industry-aligned programs that combine foundational skills with hands-on experience using real data. Such real-world training is especially important to data-driven industries.

**B2. Consistency with the Maryland State Plan for Postsecondary Education.**

The Maryland Higher Education Commission, in the 2022 Maryland State Plan<sup>1</sup>, identifies, as a major priority, "Priority 5: Maintain the commitment to high-quality postsecondary education in Maryland". Wor-Wic Community College provides high-quality postsecondary education through its commitment to affordable, accessible programs and specialized accreditations that help prepare students are workforce ready. The college emphasizes a supportive learning environment with a low

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<sup>1</sup> Maryland Higher Education Commission. (2022). 2022 Maryland State Plan for Higher Education. Retrieved from <https://mhec.maryland.gov/Pages/2022-MarylandStatePlan-MHEC.aspx>

student-to-faculty ratio, facilitating personalized attention and academic success for its diverse student body to prepare them for rewarding careers. The workforce and wage data (reference Section C) provide compelling evidence that there is positive projected growth and access to such quality, high-paying careers as Wor-Wic student are prepared to enter.

The three primary goals for the postsecondary community in Maryland remain the same:

- **Access:** Community colleges, as open enrollment institutions with access to developmental education coursework designed to prepare students for college-level mathematics and English, are uniquely poised to provide minority and educationally disadvantaged students at institutions of higher education access to the jobs of the future. By providing a STEM Transfer A.S. Data Science concentration through flexible, authentic learning experiences adapted to learners from diverse backgrounds, Wor-Wic Community College ensures equitable access to affordable and high-quality postsecondary education and a pathway for transfer to a college or university for residents of the Eastern Shore of Maryland.
- **Success:** Wor-Wic Community College offers evidence of their commitment to practices and policies that will ensure student success as evidenced by the commitment to continuous improvement and rigorous assessment practices (reference Section G3) and by transparently providing comprehensive student and academic support services as evidenced on their website, in the catalog, and via the student portal (reference Section G8).
- **Innovation:** With the existing mathematics and computer studies courses and with the addition of two new data science courses, Wor-Wic Community college has a demonstrated commitment to foster innovation through small class sizes, state-of-the art teaching laboratories and classrooms, and faculty who are both skilled and talented (reference Section I1).

**C. Quantifiable and Reliable Evidence and Documentation of Market Supply and Demand in the Region and State:**

**C.1. Potential Industry or industries, employment opportunities, and expected level of entry for graduates of the proposed program.**

The U.S. Bureau of Labor Statistics May 2023 report <sup>2</sup> identifies the following industries providing employment for Data Scientists at the entry- level for graduates from this program.

- Computer systems design and related services
- Management of companies and enterprises
- Management, scientific, and technical consulting services
- Insurance carriers
- Scientific research and development services

**C.2. Data and analysis projecting market demand and the availability of openings in the job market to be served.**

Employment opportunities for Data Scientists are trending upward and are well compensated. Data occupations are projected to grow faster than average over the next decade, and data scientist

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<sup>2</sup> U.S. Bureau of Labor Statistics. (2023, May). Occupational Employment and Wage Statistics. Retrieved from <https://www.bls.gov/oes/current/oes152051.htm>

occupations, specifically, are projected to have the fastest growth (36 percent).<sup>3</sup> Consider the following facts from the U.S. Bureau of Labor Statistics May 2023 report on Data Scientists.

- It is estimated that there are 192,710 jobs nationwide.
- The national average annual wage for these jobs was \$119,040.
- In Maryland, the average annual wage for 2,170 Data Scientist jobs was \$126,020.

**C.3. Market surveys providing quantifiable and reliable data on the educational and training needs and the anticipated number of vacancies expected over the next five years.**

In the state of Maryland, the Department of Labor<sup>4</sup> has projected long-term growth (2022-2032) in Computer and Mathematical Occupations (+20.97%) producing a total of 13,118 job openings in the state. Additionally, Data Scientists (Bachelor’s degree) are included in the top ten growing occupations with educational value in Maryland with a +39.32% long-term projected growth (2022-2032).

**C.4. Data showing current and projected supply of prospective graduates.**

Data from the Maryland Higher Education Commission Enrollment report support the viability of this program at peer Maryland community colleges.

| Institution                           | Program Name | CIP    | Approved Year | Enrollment |
|---------------------------------------|--------------|--------|---------------|------------|
| Carroll Community College             | Data Science | 307001 | 2021          | 11         |
| College of Southern Maryland          | Data Science | 307001 | 2023          | 2          |
| Community College of Baltimore County | Data Science | 307001 | 2022          | 17         |
| Harford Community College             | Data Science | 307001 | 2021          | 12         |
| Montgomery Community College          | Data Science | 307001 | 2022          | 51         |

Additionally, our primary transfer partner, Salisbury University, began offering a Bachelor of Science in Data Science in 2020 which had 24 students enrolled in 2023. On our campus, the STEM Transfer A.S. with six areas of concentration has 108 students enrolled in Fall 2024. Given these enrollments the growing importance of data science across the state and region, it would be reasonable to expect a steady supply of prospective graduates from this program.

Finally, although local education agencies (LEAs) have not yet requested that we add this course, area high schools are in the process of approving the addition of an Introduction to Data Science course as a choice for third and fourth year mathematics students. Our proposed concentration would mesh well with this LEA development.

<sup>3</sup> U.S. Bureau of Labor Statistics. (2023, June). Data Occupations with Rapid Employment Growth, Projected 2021-31. Retrieved from <https://www.bls.gov/careeroutlook/2023/data-on-display/data-occupations.htm>

<sup>4</sup> Maryland Department of Labor. (2022). Maryland Occupational Projections 2022-2032 – Workforce Information and Performance. Retrieved from <https://labor.maryland.gov/lmi/iandoproj/maryland.shtml>

**D. Reasonableness of Program Duplication:**

**D.1. Similar Programs in the State**

Carroll Community College offers a program in Data Science. The College of Southern Maryland offers a program in Data Science. The Community College of Baltimore County offers a program in Data Science. Harford Community College offers a program in Data Science. Montgomery College offers a program in Data Science. All five of these programs are AS degrees. (see C4).

The STEM Transfer Data Science AS degree at Wor-Wic Community College has similar general education requirements as existing programs at these other schools. Additionally, all six programs share a similar mix of mathematics and statistics, programming, data analysis and visualization, and database management coursework designed to prepare students for careers in data analysis, business intelligence, or information system management.

**D.2. Justification for Proposed Program**

The proposed program at Wor-Wic Community College would be the only such program on the Eastern Shore of Maryland, with the next closest institution over 100 miles from the Lower Eastern Shore. Because the closest program is more than 50 miles from Wor-Wic's campus, offering the STEM Transfer Data Science AS degree at Wor-Wic allows students in Wicomico, Somerset, and Worcester counties a more accessible and affordable option to study nearer to where they reside. The proposed Wor-Wic program also offers a more focused selection of coursework for students to meet program requirements and/or electives to help steer students toward program completion.

**E. Relevance to High-demand Programs at Historically Black Institutions (HBIs)**

The STEM Transfer A.S. with an area of concentration in Data Science prepares students to transfer to a four-year college or university immediately after graduation. Bowie State University (2 students enrolled in 2023) and Coppin State University (6 students enrolled in 2023) offer a Bachelor of Science in Data Science. However, these degrees were approved in 2022 and 2021, respectively, so they are not high-demand programs at this time.

**F. Relevance to the Identity of Historically Black Institutions (HBIs)**

The STEM Transfer A.S. with a concentration in Data Science will provide opportunities for all students to transfer to a four-year campus to complete their Bachelor of Science. There is no anticipated impact to the identity of Maryland's HBIs.

**G. Adequacy of Curriculum Design, Program Modality, and Related Learning Outcomes.**

**G.1. Establishment of Proposed Program and Faculty Who Will Oversee Program**

The proposed program will expand the diversity of STEM offerings which are currently restricted to the STEM Transfer Associate of Science degrees and six areas of concentration in Biology, Chemistry, Chemistry Pre-Pharmacy, Engineering, Math, and Physics. Program oversight will be by Dr. Stacey Hall, Department Head of Mathematics and Science and Dr. Patricia Riley, Dean of General Education.

## **G.2. Educational Objectives:**

The STEM Transfer, Data Science Concentration A.S. degree program concentration prepares students for transfer to a college or university to complete a B.S. in Data Science.

Graduates of the STEM Transfer Data Science Concentration A.S. degree program will be able to:

1. Apply core concepts of data science, mathematics, statistics, and computer science to analyze and solve problems.
2. Use data science tools and appropriate technology to create models for solving real-world problems.
3. Communicate the results of data analytics, verbally and in writing, to both technical and non-technical audiences.

## **G.3. Assessment**

### **a) Student Learning Outcomes**

Wor-Wic Community College maintains academic policies and procedures in the college Policies and Procedures Manual (PPM) that are reviewed on a regular basis and revised as needed. In accordance with the PPM, academic programs/courses and faculty are reviewed and assessed annually in line with the student learning outcomes (SLOs). The standard benchmark for courses is a 70% pass rate with regard to course objectives tested at the end of semester final exam. In the department heads' annual program reports, plans of action are developed for the upcoming year to address steps of improvement when benchmarks are not met. The plans of action are reviewed, and updates are prepared twice during the upcoming year: at 6-months and 1-year intervals. Both the dean for the program's division and the Vice President for Academic Affairs prepares responses to the department heads' annual reports.

### **b) Program Learning Outcomes**

Wor-Wic Community College has an extensive and thorough assessment plan that is managed by the Director of Institutional Assessment and Effectiveness. Under the Director, all courses and programs have annual reviews verifying that General Education objectives and student learning outcomes are met. Annually, department heads prepare reports on the status of the programs within the department, course assessments results, and action plans for the next academic year. All programs are reviewed on a five-year cycle.



**G.4. Course list including title, semester credit hours and course descriptions, and program requirements.**

**Associate of Applied Science STEM Transfer  
Data Science (Area of Concentration)  
Proposed Pathway**

| <u>Summer Session II</u>          |  | Credits      |
|-----------------------------------|--|--------------|
| <input type="checkbox"/> SDV 100  | Fundamentals of College Study          | 1            |
| <br><b>FIRST YEAR</b>             |  |              |
| <u>Fall Semester</u>              |  |              |
| <input type="checkbox"/> ENG 101* | Fundamentals of English I              | 3            |
| <input type="checkbox"/> MTH 121* | Precalculus I                          | 3            |
| <input type="checkbox"/> DAT 105  | Introduction to Data Science           | 3            |
| <input type="checkbox"/> GEN ED   | Social/Behavioral Science Requirement  | 3            |
| <input type="checkbox"/> GEN ED   | Arts and Humanities Requirement        | <u>3</u>     |
|                                   |  | <b>15</b>    |
| <br><u>Spring Semester</u>        |  |              |
| <input type="checkbox"/> ENG 151* | Fundamentals of English II             | 3            |
| <input type="checkbox"/> MTH 122* | Precalculus II                         | 4            |
| <input type="checkbox"/> CMP 135* | Introduction to Programming            | 4            |
| <input type="checkbox"/> Elective | General Elective                       | <u>3</u>     |
|                                   |  | <b>14/30</b> |
| <br><b>SECOND YEAR</b>            |  |              |
| <u>Fall Semester</u>              |  |              |
| <input type="checkbox"/> CMP 210* | Computer Science I                     | 4            |
| <input type="checkbox"/> MTH 152* | Statistics                             | 3            |
| <input type="checkbox"/> DAT 214* | Statistics Laboratory for Data Science | 1            |
| <input type="checkbox"/> MTH 201* | Calculus I                             | 4            |
| <input type="checkbox"/> GEN ED   | Lab Science Requirement                | <u>4</u>     |
|                                   |  | <b>16/46</b> |
| <br><u>Spring Semester</u>        |  |              |
| <input type="checkbox"/> MTH 202* | Calculus II                            | 4            |
| <input type="checkbox"/> GEN ED   | Lab Science Requirement                | 4            |
| <input type="checkbox"/> Elective | General Elective                       | 3            |
| <input type="checkbox"/> GEN ED   | Social/Behavioral Science Elective     | <u>3</u>     |
|                                   |  | <b>14/60</b> |

\* This course has a prerequisite

**NEW Coursework that will support the STEM Data Science Area of Concentration:**

**DAT 105 Introduction to Data Science (3 credits)**

This course provides an introduction to the fundamental concepts and techniques of data science, equipping students with the skills to prepare, organize, and visualize data as well as analyze, interpret, and communicate results. Students will discuss ethical issues and gain hands-on experience with real datasets. *Lecture hours: 39. Prerequisite(s): ENG 095 or ENG 097 and MTH 052C or 092 with a grade of "C" or better. Usually offered in the fall.*

**DAT 214 Statistics Laboratory for Data Science (1 credit)**

This hands-on lab course introduces students to the fundamental tools and techniques of data science using R, a programming language for statistical computing and data analysis. Students will learn data manipulation, cleaning, visualization, and essential statistical methods. Through practical exercises, students will explore realistic datasets, develop skills in insightful visualizations, and apply statistical techniques to interpret and analyze data. *Laboratory hours: 26. Prerequisite(s): MTH 152 with a grade of "C" or better. Usually offered in the fall.*

**Existing Coursework that will support the STEM Data Science Area of Concentration:**

**CMP 135 Introduction to Programming (4 credits)**

This course introduces students to the basic principles of programming, object-oriented concepts and terminology. Using an industry-appropriate and current programming language, students are introduced to the concepts of decision, repetition, objects, classes, inheritance and polymorphism. *Lecture Hours: 26. Laboratory Hours: 52. Prerequisite(s): CMP 134 or MTH 099 with a grade of "C" or better. Laboratory Fee: \$25. Usually offered in the spring.*

**CMP 210 Computer Science I (4 credits)**

This course offers an introduction to the theory of programming structures and problem analysis to solve common computer problems. Problems are solved by designing, implementing and testing algorithms. The emphasis in this course is on problem solving and developing well-designed computer programs. This course is taught using a high-level object-oriented programming language. *Lecture Hours: 26. Laboratory Hours: 52. Prerequisite(s): CMP 135 with a grade of "C" or better. Laboratory Fee: \$25. Usually offered in the fall.*

**MTH 121 Precalculus I (3 credits)**

This course covers the advanced algebra necessary to prepare students for the study of calculus. Topics include solving, graphing and modeling with linear, quadratic, polynomial, rational, radical, exponential, logarithmic equations and inequalities. Systems of equations in two variables and operations with matrices are also included. *Lecture Hours: 39. Prerequisite(s): MTH 099 with a grade of "C" or better or an acceptable mathematics placement test score. Usually offered in the fall and spring.*

**MTH 122 Precalculus II (4 credits)**

This course is a continuation of MTH 121. Trigonometry and advanced algebra are studied to prepare students for calculus. Trigonometric topics include angle measurement, definitions of the six trigonometric functions from the right triangle and unit circle perspectives, graphs, identities, inverses and equations. Algebraic topics include polar coordinates, parametric equations and a review of functions and graphs. A problem-solving approach utilizes applications and a graphing calculator throughout the course. *Lecture*

## Maryland Higher Education Commission

*Hours: 52. Prerequisite(s): MTH 121 with a grade of "C" or better or an acceptable mathematics placement test score. Usually offered in the fall and spring.*

### **MTH 152      Statistics                      (3 credits)**

This course provides an introduction to statistical concepts and applications. Topics include data organization, measures of central tendency and variation, probability related to statistics, discrete and continuous distributions, estimation and testing of population parameters, and linear correlation and regression. Technology is required throughout the course for statistical analyses. *Lecture*

*Hours: 39. Prerequisite(s): ENG 095 or ENG 097 and MTH 092 with grades of "C" or better or acceptable reading and mathematics placement test scores. Usually offered in the fall, spring and summer.*

### **MTH 201      Calculus I                      (4 credits)**

This course focuses on the rigorous treatment of topics traditionally covered in a first-semester calculus course. Topics covered include limits, differentiation, applications of the derivative, antidifferentiation, the indefinite and definite integral, integration by substitution and applications of the integral. *Lecture*

*Hours: 52. Prerequisite(s): MTH 122 with a grade of "C" or better or permission of the department head. Usually offered in the fall and spring.*

### **MTH 202      Calculus II                      (4 credits)**

This course on calculus with analytic geometry introduces integration techniques, improper integrals, sequences, infinite series, conic sections and polar coordinates. Students solve applied problems related to limits, differentiation, integration and infinite series. A computer algebra system, such as Mathematica or Matlab, is introduced and used. *Lecture Hours: 52. Prerequisite(s): MTH 201 with a grade of "C" or better or permission of the department head. Usually offered in the fall and spring.*

## **G.5. General Education Requirements**

**SDV 100 – Fundamentals of College Study (1 credit)** [Not a General Education core requirement, but a core course requirement at Wor-Wic Community College]

### **English and Composition Requirement:**

ENG 101 – Fundamentals of English I (3 credits)

### **Math Requirement:**

MTH 121 – Precalculus I (3 credits)

### **Biological/Physical Science Requirement (8 credits):**

The following are recommended-

BIO 105–Principles of Biology I (4 credits) and BIO 106–Principles of Biology II (4 credits)

*or*

CHM 105 – General Chemistry I (4 credits) and CHM 106–General Chemistry II (4 credits)

*or*

PHY 141–Principles of Physics I (4 credits) and PHY 142–Principles of Physics II (4 credits)

### **Arts and Humanities Requirement (3 credits):**

ENG 151 – Fundamentals of English II (3 credits)

## Maryland Higher Education Commission

And 3 additional credits from:

ART 101 - Introduction to Art History (3 Credits)  
ART 101H - Introduction to Art History, Honors (3 Credits)  
ASL 101 - American Sign Language I (3 Credits)  
ASL 102 - American Sign Language II (3 Credits)  
COM 101 - Introduction to Public Speaking (3 Credits)  
COM 101H - Introduction to Public Speaking, Honors (3 Credits)  
COM 200 - Interpersonal Communication (3 Credits)  
COM 201 - Instructional Communication (3 Credits)  
ENG 151 - Fundamentals of English II (3 Credits)  
ENG 151H - Fundamentals of English II, Honors (3 Credits)  
ENG 165 - Introduction to Film (3 Credits)  
FRN 101 - Fundamentals of French I (3 Credits)  
FRN 102 - Fundamentals of French II (3 Credits)  
MUS 101 - Music Appreciation (3 Credits)  
PHL 101 - Introduction to Philosophy (3 Credits)  
SPN 101 - Fundamentals of Spanish I (3 Credits)  
SPN 102 - Fundamentals of Spanish II (3 Credits)  
SPN 201 - Intermediate Spanish I (3 Credits)  
SPN 202 - Intermediate Spanish II (3 Credits)

### **Social/Behavioral Science Requirement (3 credits): Choose from**

ECO 120 – Survey of Economics (3 credits)  
ECO 151 – Principles of Macroeconomics (3 credits)  
ECO 201 – Principles of Microeconomics (3 credits)  
GEO 102 – Human Geography (3 credits)  
HIS 101 – World Civilization I (3 credits)  
HIS 151 – World Civilizations II (3 credits)  
HIS 151H – World Civilizations II, Honors (3 credits)  
HIS 201 – American History I (3 credits)  
POL 101 – American Government (3 credits)  
PSY 101 – Introduction to Psychology (3 credits)  
PSY 201 – Human Relations (3 credits)  
SOC 101 – Introduction to Sociology (3 credits)  
SOC 101H – Introduction to Sociology, Honors (3 credits)

**General Electives:** Choose in consultation with an academic advisor.

### **Concentration Courses:**

MTH 122 – Precalculus II (4 credits)  
MTH 152 – Statistics (3 credits)  
MTH 201 – Calculus I (4 credits)  
MTH 202 – Calculus II (4 credits)  
CMP 135 – Introduction to Programming (4 credits)  
CMP 210 – Computer Science I (4 credits)  
DAT 105 – Introduction to Data Science (3 credits)  
DAT 214 – Statistics Laboratory for Data Science (1 credit)

### **G.6. Specialized Accreditation**

The STEM Transfer Data Science A.S. has no specialized accreditation or graduate certification requirements for the program or for the students

### **G.7. Contracting with Another Institution or Non-Collegiate Organization**

The STEM Transfer Data Science A.S. requires no contracting with another institution or non-collegiate organization.

### **G.8. Provide assurance and any appropriate evidence that the proposed program will provide students with clear, complete, and timely information on the curriculum, course and degree requirements, nature of faculty/student interaction, assumptions about technology competence and skills, technical equipment requirements, learning management system, availability of academic support services and financial aid resources, and costs and payment policies.**

Wor-Wic Community College documents the curricula requirements for all programs in the annual college catalog. In addition to curricula, the program's learning objectives are also documented in the catalog along with each course description. Consistent with standard college catalog practices, the catalog includes the academic calendar, college admissions process and requirements, tuition and fees schedule, financial aid and loans process, student advisement and academic standards, and processes for student grievance and complaints. Current and past college catalogs are accessible on the Wor-Wic Community College website.

Wor-Wic students can find information about support services through three key channels. By exploring the college's website and its dedicated sections for student services, students can learn about academic advising, financial aid, mental health counseling, and career services. By visiting the Student Services office, students can access academic support, disability services, counseling, tutoring, mentorship, career planning assistance and counseling, tutoring, mentorship, and career planning assistance. By utilizing online portals and tools, such as myWor-Wic, students can access student advising, financial aid, and disability and mental health support.

### **G.9. Advertising, Recruiting, and Admissions Materials**

Wor-Wic Community College has processes in place to ensure the accuracy of college advertisements, as well as recruitment and admissions materials. Once a new program is approved, it is entered into the college catalog, which is used as the basis for any program description, advertisement or publication. The department head for the program approves any information being disseminated before it is made public.

## H. Adequacy of Articulation

The STEM Transfer Data Science A.S. proposal involves an articulation agreement between Wor-Wic Community College and Salisbury University. Please see the full articulation agreement between WWCC and SU below.

## I. Adequacy of Faculty Resources

### I.1. Quality of Program Faculty and List of Faculty

| Faculty Member         | Terminal Degree and Field           | Full or Part-time | Rank/Title                              | Courses Taught   |
|------------------------|-------------------------------------|-------------------|---|--|
| Mary Lou Townsend      | M. Ed. with a concentration in Math | Full-time         | Associate Professor of Mathematics      | MTH 152-Statistics<br>DAT 105-Introduction to Data Science<br>DAT 214-Statistics Laboratory for Data Science |
| Ben Davis              | M.S. Information Systems            | Full-time         | Instructor of Computer Studies          | CMP 135-Introduction to Programming  |
| Dr. Curtis Satterfield | Ph.D. Organizational Leadership     | Full-time         | Associate Professor of Computer Studies | CMP 210-Computer Science I   |
| Berrin Kilicarslan     | Ph.D. Mathematics                   | Full-time         | Associate Professor of Mathematics      | MTH 121-Precalculus I<br>MTH 202-Calculus II   |
| Kathie Noonan          | Ed.S. Mathematics Education         | Full-time         | Associate Professor of Mathematics      | MTH 122- Precalculus II<br>MTH 152 - Statistics  |
| Alketa Nina            | M.S. Mathematics                    | Full-time         | Associate Professor of Mathematics      | MTH 201-Calculus I   |

### I.2. Ongoing Pedagogy Training for Faculty in Evidence-Based Best Practices

#### a) Pedagogy that meets the needs of students

Wor-Wic Community College supports faculty professional development and encourages faculty participation in professional growth activities, including workshops, webinars, and off-site training focused on current and relevant teaching topics and best practices, including enhancing accessibility for students with

disabilities. The college fosters a collaborative environment that encourages innovation and excellence, allowing faculty to contribute significantly to student access and success as well as campus pedagogical development. Furthermore, faculty are involved in program development and creation of new opportunities, enhancing their expertise and dedication to discipline specific professional development.

Wor-Wic also offers faculty opportunities to apply for college and grant funds to offset the costs of additional professional development opportunities.

**b) The learning management system (LMS)**

Wor-Wic Community College has adopted Blackboard Learn—Ultra Experience for the college’s learning management system (LMS). Accessibility of courses is checked using Ally for Blackboard, which automatically checks for accessibility issues and generates accessible formats.

All faculty are required to use a class shell prepared for each class section. Faculty have preparatory access to class shells before the semester, providing them time and resources to create course syllabi and configure the online gradebook.

LMS training and support are provided by the Wor-Wic Distance Learning department. The department Instructional Technologist and Instructional Designer provide logistical and pedagogical support through regularly scheduled professional development opportunities and case-by-case trouble shooting.

**c) Evidenced-based best practices for distance education, if distance education is offered.**

Wor-Wic Community College is a member of Maryland Online (MOL), Quality Matters (QM), and Online Learning Consortium (OLC). Courses are designed with support from Learning Services, the Instructional Designer, and the Instructional Technologist. Online courses are evaluated and updated in line with Quality Online Instruction (QOI) standards.

**J. Adequacy of Library Resources**

The Wor-Wic Community College Library Resource Centers (LRC), located in Brunkhorst Hall, is a research facility supporting academic programs on and off campus. The LRC provides computer use on campus and 24/7 access to academic resources and digital collections through its website. The Director of Library Services coordinates the LRC and supervises the efforts of the librarian, assistant librarians, and library aides who provide research assistance, facilitate research workshops and student orientations, and maintain research guides for faculty and students. Library staff also assist with software access, document formatting, reference and citation usage, and interlibrary loan. Remote LRC services are provided via telephone, library email, and live chat sessions.

In addition to the Wor-Wic Community College LRC, current Wor-Wic students have access to the libraries at Salisbury University and the University of Maryland Eastern Shore. Both sites are traditional libraries with electronic and physical resources.

**K. Adequacy of Physical Facilities, Infrastructure, and Instructional Equipment**

**K.1. Physical Facilities, Infrastructure, and Equipment Assurances**

Wor-Wic Community College currently supports a STEM Transfer AS degree with six areas of concentration and a Computer Studies Transfer AA degree with three areas of concentration. These degrees include a broad offering of STEM and Computer Science coursework that ensures adequate physical facilities, infrastructure, and instructional equipment to support the existing mathematics and engineering courses. Our mathematics program is further supported by the Mathematics laboratory what provides students with access to computers and tutoring support.

**K.2. Distance Education Assurances**

To support distance education and off-campus access to college and class resources, Wor-Wic Community College provides students and faculty electronic credentials and log-in access to the college’s myWor-Wic portal. The myWor-Wic portal connects students, faculty, and distance education staff to the Blackboard learning management system, an email account, electronic library resources, and registration information. Students who register for online scheduled class sections must complete a mandatory Blackboard tutorial and assessment before accessing course material. Faculty responsible for facilitating online learning and evaluating student success have access to effective support in course design and delivery and are supported in using the LMS through the office of Learning Services. Learning Services and Informational Technology collaborate to provide technological support to all faculty, students, and staff.

**L. Adequacy of Financial Resources with Documentation**

**L.1. Table 1—Resources and Narrative Rationale**

The STEM Transfer AS Data Science area of concentration will attract a combination of full-time and part-time students. Future tuition and fees for each year are calculated at the rate of a 3% increase from the previous year’s tuition and fees.

| <b>TABLE 1: PROGRAM RESOURCES</b> |               |               |               |               |               |
|-----------------------------------|---------------|---------------|---------------|---------------|---------------|
| <b>Resource Categories</b>        | <b>Year 1</b> | <b>Year 2</b> | <b>Year 3</b> | <b>Year 4</b> | <b>Year 5</b> |
| 1. Reallocated Funds              | 0             | 0             | 0             | 0             | 0             |
| 2. Tuition/Fee Revenue (c + g)    | \$18,770.72   | \$31,317.57   | \$44,600.33   | \$58,652.38   | \$66,959.34   |
| a. Number of F/T Students         | 3             | 8             | 11            | 13            | 15            |



Maryland Higher Education Commission

|   |             |             |             |             |              |
|---|-------------|-------------|-------------|-------------|--------------|
| b. Annual Tuition/Fee Rate                    | \$4499.04   | \$4634.01   | \$4773.03   | \$4916.22   | \$5063.71    |
| c. Total F/T Revenue (a * b)                  | \$13,497.12 | \$37,027.08 | \$52,503.33 | \$63,910.86 | \$75,955.65  |
| d. Number of P/T Students                     | 6           | 12          | 16          | 18          | 22           |
| e. Credit Hour Rate                           | \$164.80    | \$169.74    | \$174.83    | \$180.08    | \$185.48     |
| f. Annual Credit Hour                         | 8           | 8           | 8           | 8           | 8            |
| g. Total P/T Revenue (d * e * f)              | \$7,910.40  | \$16,295.04 | \$22,378.24 | \$25,931.52 | \$32,644.48  |
| 3. Grants, Contracts & Other External Sources | 0           | 0           | 0           | 0           | 0            |
| 4. Other Sources                              | 0           | 0           | 0           | 0           | 0            |
| TOTAL (Add 1 – 4)                             | \$21,407.52 | \$53,322.12 | \$74,881.57 | \$89,842.38 | \$108,600.13 |

**L.2. Table 2—Program Expenditures and Narrative Rationale**

The courses in the program are required in other associate degree programs and are already assigned to existing full-time faculty. There are no anticipated program expenditures.

| <b>TABLE 2: EXPENDITURES</b>   |        |        |        |        |        |
|--------------------------------|--------|--------|--------|--------|--------|
| Expenditure Categories         | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| 1. Faculty (b + c below)       | 0      | 0      | 0      | 0      | 00     |
| a. #FTE                        | 0      | 0      | 0      | 0      | 0      |
| b. Total salary                | 0      | 0      | 0      | 0      | 0      |
| c. Total benefits              | 0      | 0      | 0      | 0      | 0      |
| 2. Admin. staff (b + c below)  | 0      | 0      | 0      | 0      | 0      |
| a. #FTE                        | 0      | 0      | 0      | 0      | 0      |
| b. Total salary                | 0      | 0      | 0      | 0      | 0      |
| c. Total benefits              | 0      | 0      | 0      | 0      | 0      |
| 3. Support staff (b + c below) | 0      | 0      | 0      | 0      | 0      |
| a. #FTE                        | 0      | 0      | 0      | 0      | 0      |
| b. Total salary                | 0      | 0      | 0      | 0      | 0      |

|                           |   |   |   |   |   |
|---------------------------|---|---|---|---|---|
| c. Total benefits         | 0 | 0 | 0 | 0 | 0 |
| 4. Equipment              | 0 | 0 | 0 | 0 | 0 |
| 5. Library                | 0 | 0 | 0 | 0 | 0 |
| 6. New or renovated space | 0 | 0 | 0 | 0 | 0 |
| 7. Other expenses         | 0 | 0 | 0 | 0 | 0 |
| TOTAL (Add 1 - 7)         | 0 | 0 | 0 | 0 | 0 |

**M. Adequacy of Provisions for Evaluation of Program**

**M.1. Evaluation Procedures—Courses, Faculty, Student Learning Outcomes**

In accordance with the Wor-Wic Community College’s PPM, academic programs, courses and faculty are reviewed/assessed annually on the student learning outcomes (SLOs) which result from annual assessment activities. The standard benchmark for courses is a 70% pass rate for course objectives tested during the end of semester final exam. In the department heads’ annual program reports, plans of action are developed for the upcoming year to address steps of improvement when benchmarks are not met. The plans of action are reviewed, and updates are prepared twice during the upcoming year: at 6-months and 1-year intervals. Both the dean for the program’s division and the Vice President for Academic Affairs prepares responses to the department head’s annual reports.

Part-time faculty members are evaluated by the department head and the evaluations include classroom observations as needed, as well as student input. Online surveys requesting the opinions of students are distributed at the end of each semester. The survey results are returned directly to the vice president for academic affairs, who provides each faculty member, the department head and dean with a compilation of the student surveys. Students enrolled in a new part-time faculty member’s first semester of teaching receives an abbreviated survey at the midterm point of the semester and the survey results are returned directly to the faculty member, who submits a summary of these surveys to the dean and the vice president for academic affairs.

**M.2. Evaluation of Proposed Program’s Effectiveness**

In accordance with Wor-Wic Community College’s Assessment policies and procedures, all programs and courses are reviewed annually to validate the status with meeting objectives and outcomes. Department heads prepare annual reports on the successes, challenges, and achievements. Programs are also reviewed using a standard program review process every five years.

#### **N. Consistency with the State’s Minority Student Achievement Goals**

Per Wor-Wic Community College’s policies and procedures, the college has a standing Cultural Diversity committee consisting of representation from students, faculty, college staff and administrators. The committee is responsible for annually reviewing the Cultural Diversity Plan and scheduling events for the college community.

The Cultural Diversity Plan states: “Wor-Wic Community College is committed to a plan of cultural diversity that promotes inclusivity of diverse students and employees. The college has created a welcoming atmosphere on campus and has infused cultural diversity in all college programs, services, and communications. The college has demonstrated this commitment to cultural diversity through its vision, values, mission, and goals stated in the institutional strategic plan. The strategic plan of the college is in alignment with the diversity goals of the Maryland State Plan for Postsecondary Education, including implementation strategies and timelines for meeting the goals.”

Wor-Wic’s student body represents a wide array of diversity with 40 percent of the students identified as non-white. Wor-Wic exceeds the average of non-white residents in the service region, as 31.8% of the population identify as non-white in this area.

#### **O. Relationship to Low Productivity Programs Identified by the Commission:**

The STEM Transfer Data Science A.S. is not related directly to an identified low productivity program.

#### **P. Adequacy of Distance Education Programs**

##### **P.1. Provide affirmation and any appropriate evidence that the institution is eligible to provide Distance Education.**

Wor-Wic Community College is eligible to provide Distance Education as described by the Middle States Commission on Higher Education (MSCHE) and has been approved to offer Distance Education by the Maryland Higher Education Commission (MHEC), according to the Commission’s Institutional Approval to Offer Distance Education—COMAR 13B.02.03.22B (as of January 4, 2019).

##### **P.2. Provide assurance and any appropriate evidence that the institution complies with the C-RAC guidelines, particularly as it relates to the proposed program.**

Wor-Wic Community College is a participating member of The National Council for State Authorization Reciprocity Agreements (NC-SARA). According to the 22.1 Version of the SARA Policy Manual (June 27, 2022), “C-RAC Guidelines adopted by the Council of Regional Accrediting Commissions are incorporated in the requirements of SARA as policies.” College compliance with C-RAC guidelines is overseen by the office of Learning Services.

## **PROGRAM ARTICULATION AGREEMENT**

**Between**

**Wor-Wic Community College and**

**Salisbury University**

**Associate of Science in STEM, Data Science Concentration to**

**Bachelor of Science in Data Science**

**July 2025 through June 2030**

This Program Articulation Agreement ("Agreement"), effective Fall 2025 ("Effective Date"), is by and between Wor-Wic Community College, a community college located in Salisbury, Maryland, and Salisbury University, a constituent institution of the University System of Maryland, an agency of the state of Maryland (hereinafter sometimes referred to individually as a "Party" or "Institution" and collectively as the "Parties" or "Institutions"). This Agreement sets forth the joint curricula and program requirements for the completion of the Associate of Science in STEM, Data Science Concentration from Wor-Wic Community College and the Bachelor of Science in Data Science at Salisbury University.

### RECITALS

*Whereas*, Wor-Wic Community College and Salisbury University are committed to partnering to expand the educational opportunities and collaborative academic programming of their respective institutions; and

*Whereas*, the Institutions are committed to providing a smooth transition for students wishing to earn an associate of arts degree and a baccalaureate degree; and

*Whereas*, the intent of the Institutions is to avoid duplication of curricula, where appropriate, within articulated programs of studies; and

*Whereas*, the Institutions agree that the educational growth of students and the economic development of the community is better served through cooperative educational planning and optimal utilization of community resources.

*Therefore*, this Agreement commits the Parties to full support of an articulation process to deliver coursework for students, resulting in the associate of science degree from Wor-Wic Community College and credit toward the bachelor of science degree at Salisbury University. The Parties agree to the following:

**I. ACADEMIC REQUIREMENTS**

- A. The Institutions agree to follow the joint program curriculum and course by course articulation delineated in Appendix 1, which is attached hereto and made a part of this Agreement.
- B. Both Institutions will cooperate toward developing, disseminating, and presenting the articulated program information to students.
- C. Students who have graduated from Wor-Wic Community College program must first apply to Salisbury University. Once a completed application is received, Wor-Wic Community College graduates who have completed the associate's degree program in Associate of Science in STEM, Data Science Concentration, with a cumulative grade point average of 2.0 or higher will be granted admission to Salisbury University as an Data Science major.
- D. All articulated course credits applied towards satisfying Bachelor of Science in Data Science major requirements earned with a C or better will be accepted for transfer according to the articulation matrix in Appendix 1.
- E. Salisbury University shall provide a Checklist for students as a planning tool for completing coursework required for the Bachelor of Science in Data Science major in Appendix 2, attached hereto and made a part of this Agreement.
- F. Students intending to transfer are recommended to apply for admission by the priority deadline for the semester for which they intend to enroll.
- G. Students are subject to all specific policies pertaining to students admitted to the Salisbury University baccalaureate degree program in Bachelor of Science in Data Science and all other Salisbury University admissions policies and procedures.

**II. TERM AND TERMINATION**

- A. The term of this Agreement commences as of the Effective Date listed herein. This Agreement is based on the present curricula contained herein and in all appendices, and is effective for five (5) years from July 2025 to June 2030.
- B. Either Party may terminate this Agreement with notice to the other Party, pursuant to Section III.G below. Upon termination or expiration of this Agreement, the Parties shall develop a process that will reasonably allow students already admitted to and enrolled in joint programming to continue their studies. Neither Party will terminate this Agreement at a time that would deter a "cohort-in-progress" from completing graduation within the originally designated timeframe.

**III. GENERAL PROVISIONS**

- A. Each Institution is responsible for the administration of its respective courses, including content, requirements, faculty, and student services (to include, but not limited to, admissions, financial aid, class registration, etc.).
- B. When enrolled in a Salisbury University course, the student is subject to all policies and procedures applicable to Salisbury University students. When enrolled in a Wor-Wic Community College course, a student is subject to all policies and procedures applicable

to Wor-Wic Community College students. Additional joint policies and procedures may be adopted and implemented at the discretion of both Parties.

- C. The Parties recognize that course scheduling beyond the associate's degree level resides exclusively with Salisbury University and will be coordinated with Wor-Wic Community College by the designated Salisbury University representative. Where academic calendars differ, the Parties will work together to coordinate class offerings and class schedules.
- D. The disclosure of information about individual students is limited by the federal Family Educational Rights and Privacy Act (FERPA). The Parties agree that release of student educational records to each other is conditioned upon the submission of a signed agreement by the student authorizing such release.
- E. The Parties agree not to release student information to any third-party without the written consent of the other Party and in compliance with FERPA and any other federal or state of Maryland laws, rules, and regulations, and policies of the Parties.
- F. The Parties shall publicize any joint offerings in their respective catalogs, website, and other materials as appropriate. Notwithstanding the foregoing, neither Party may use the names or marks of the other without the prior written approval of the other Party.
- G. The Parties shall inform students in their respective programs of the complementary program opportunities available at each other's respective institution, support each other's marketing efforts toward the same, and encourage students to apply to programs consistent with an individual student's interests.
- H. Notwithstanding anything in this Agreement to the contrary, both Parties retain full authority over their respective courses, programs, and requirements. Both Parties reserve the right to make changes to their respective courses, programs, and requirements. However, each Party shall give to the other reasonable notice and details of changes to this Agreement and other changes in its courses, programs, and requirements that may affect this Agreement. In the event such changes affect the terms of this Agreement, this Agreement and any of its appendices shall be updated as needed to reflect such changes.
- I. The Parties designate the following persons as their respective representatives to coordinate and manage the activities under this Agreement:

Wor-Wic Community College  
Kristin Mallory, Vice President for Academic Affairs  
32000 Campus Drive  
Salisbury, Maryland 21804  
kmallory@worwic.edu  
(410) 334-2813

Salisbury University  
Michael Scott, Dean  
Richard A. Henson School of Science and Technology  
1101 Camden Avenue  
Salisbury, Maryland 21801

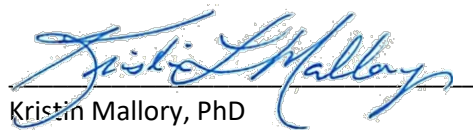
[msscott@salisbury.edu](mailto:msscott@salisbury.edu)

(410) 543-6489

- J. The designated representatives shall meet as needed, at a mutually agreeable time and location, to discuss various collaborations and other topics of interest to either Institution. A Party may change its representative by giving notice to the other Party.
- K. Either Institution may at any time recommend changes to this Agreement. Both Institutions reserve the right to modify the programs as deemed necessary and agree to inform the appropriate representatives of the other Institution of recommended changes. This Agreement may be modified only in writing signed by both Parties.
- L. All notices under this Agreement must be in writing; delivered in person, by U.S. mail or by email to the representatives listed above in this Section III.
- M. Nothing in this Agreement is intended to form a joint venture between the Parties. Nothing in this MOU is intended to create rights or benefits for any person or entity other than the Parties.
- N. This Agreement integrates the entire agreement of the Parties and supersedes any and all prior and/or contemporaneous agreements between the Parties, written or oral, with respect to the subject matter of this Agreement.

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed by their duly authorized representatives.

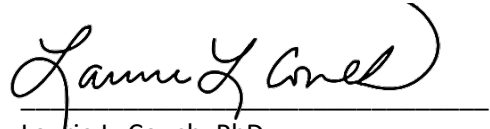
**Wor-Wic Community College**



Kristin Mallory, PhD

Vice President for Academic Affairs

**Salisbury University**



Laurie L. Couch, PhD

Provost and Senior Vice President of  
Academic Affairs

Date: 1/14/2025

Date: 1/16/2025

**APPENDIX 1**  
**Articulation Matrix**

The following matrix includes course equivalencies, including general education requirements and courses necessary to satisfy major requirements. The matrix also includes a recommended student curricular pathway to complete the Associate of Science degree and the Bachelor of Science degree requirements.

While the student is not required to take all courses in the precise order recommended in the articulation matrix, all course equivalencies described in the matrix and the manner in which they fulfill general education and major requirements at Salisbury University are binding.

Students are strongly advised to seek appropriate advising with regard to the completion of requirements for the associate of science degree, transition to Salisbury University, and completion of all requirements for the bachelor of science degree.



## **APPENDIX 2**

### **Bachelor of Science Data Science Curriculum**

**Spring 2025**

This Appendix 2 outlines the requirements to earn a baccalaureate degree in Data Science from Salisbury University, as of the Spring 2025 semester. It includes overall Salisbury University curriculum policies, general education requirements, major core courses, and major elective courses.

Only one track is shown for illustrative purposes. Each of the 6 tracks (Astrostatistics, Bioinformatics, Chemometrics, Computational Data Science, Geoanalytics, Mathematical Data Science) have the same core requirements and similar electives.

| WW Course Prefix | WW Course Number | WW Course Title                        | Credits (at WW) | GenEd at WW                 |                   | SU Course Prefix | SU Course Number | SU Course Title                          | Credits (at SU) | GenEd at SU* | SU Degree Requirements | Credits Taken by Student |                           |
|------------------|------------------|--|-----------------|-----------------------------|-------------------|------------------|------------------|--|-----------------|--------------|------------------------|--------------------------|---------------------------|
| SDV              | 100              | Fundamentals of College Study          | 1               |                             | Summer Session II | ELEC             |                  |  | 1               |              |                        | 1                        | Wor-Wic Community College |
| ENG              | 101              | Fundamental of English I               | 3               | English Composition         | Semester 1        | ENGL             | 103              | Composition and Research                 | 3               |              |                        | 15                       |                           |
| MTH              | 121              | Precalculus I                          | 3               | Mathematics                 |                   | MATH             | ELEC             | GEN ED                                   | 3               |              |                        |                          |                           |
| DAT              | 105              | Introduction to Data Science           | 3               |                             | Semester 1        | DSCI             | ELEC             | Data Science Elective                    | 3               |              |                        | 14                       |                           |
| GEN              | ED               | Social/Behavioral Science              | 3               | Social/Behavioral Science   |                   | GEN              | ED               |  | 3               |              |                        |                          |                           |
| GEN              | ED               | Arts and Humanities                    | 3               | Arts and Humanities         | Semester 2        | GEN              | ED               |  | 3               |              |                        | 16                       |                           |
| ENG              | 151              | Fundamental of English II              | 3               | Arts and Humanities         |                   | ENGL             | ELEC             | GEN ED                                   | 3               |              |                        |                          |                           |
| MTH              | 122              | Precalculus II                         | 4               |                             | Semester 2        | MATH             | 140              | College Algebra and Trigonometry         | 4               |              |                        | 14                       |                           |
| CMP              | 135              | Introduction to Programming            | 4               |                             |                   | COSC             | 117              | Programming Fundamentals                 | 4               |              | MR(1 of 9)             |                          |                           |
| ELEC             |                  |  | 3               |                             | Semester 3        | TBD              | ELEC             |  | 3               |              |                        | 16                       |                           |
| CMP              | 210              | Computer Science I                     | 4               |                             |                   | COSC             | 120              | Computer Science I                       | 4               |              | MR(2 of 9)             |                          |                           |
| MTH              | 152              | Statistics                             | 3               |                             | Semester 3        | MATH             | 155#             | Modern Statistics with Computer Analysis | 3               |              | MR(3 of 9)             | 14                       |                           |
| DAT              | 214              | Statistics Laboratory for Data Science | 1               |                             |                   | MATH             | 214#             | Statistics Laboratory                    | 1               |              |                        |                          |                           |
| MTH              | 201              | Calculus I                             | 4               |                             | Semester 4        | MATH             | 201              | Calculus I                               | 4               |              | MR(4 of 9)             | 14                       |                           |
| GEN              | ED%              | Lab Science                            | 4               | Biological/Physical Science |                   | GEN              | ED               |  | 4               |              | ME (1)                 |                          |                           |
| MTH              | 202              | Calculus II                            | 4               |                             | Semester 4        | MATH             | 202              | Calculus II                              | 4               |              | MR(5 of 9)             | 14                       |                           |
| GEN              | ED\$             | Lab Science                            | 4               | Biological/Physical Science |                   | GEN              | ED               |  | 4               |              | ME(2)                  |                          |                           |
| GEN              | ED               | Social/Behavioral Science              | 3               | Social/Behavioral Science   | Semester 4        | GEN              | ED               |  | 3               |              |                        | 15                       |                           |
| ELEC             |                  |  | 3               |                             |                   | TBD              | ELEC             |  | 3               |              |                        |                          |                           |

\*All SU General Education Course Requirements are satisfied with the completion of an AS degree.

MR - Major requirements (11)  
ME - Major track elective requirements (4 or 5). Seven potential opportunities to take these courses are listed to create pathways so each of the six tracks may be completed in four years.

#MATH 155 and MATH 214 together give credit for MATH 216.

The Data Science Major at Salisbury University requires students to complete one of six tracks. The student will want to create their program plan based on which track they desire to pick.

%BIO 105: Bioinformatics Track  
CHM 105: Chemometrics Track  
PHY 141: Astrostatistics Track

\$CHM 106: Chemometrics Track  
PHY 142: Astrostatistics Track

Students interested in the Mathematical Data Science Track may be interested in taking MTH 203 at an Elective at WWCC.

1. BIO 105 transfers as BIOL 201
- 2a. CHM 105 transfers as CHEM 121  
b. CHM 106 transfer as CHEM 122
- 3a. PHY 141 transfers as PHYS 221  
b. PHY 142 and PHY 143 transfers to PHYS 223 and PHY 225 as a block
4. MTH 203 transfers as MATH 310.

CC Credits Transferred 60  
SU Credits 62

Salisbury University

**Semester 0 (Summer II)**

| <b>Wor-Wic Community College</b>    | <b>Credits</b> |    | <b>Salisbury University</b> | <b>Credits</b> |
|-------------------------------------|----------------|----|-----------------------------|----------------|
| SDV 100 Fundamentals of College Day | 1              | to | ELEC                        | 1              |

**Semester 1**

| <b>Wor-Wic Community College</b>     | <b>Credits</b> |    | <b>Salisbury University</b>       | <b>Credits</b> |
|--------------------------------------|----------------|----|-----------------------------------|----------------|
| ENG 101 Fundamentals of English I    | 3              | to | ENGL 103 Composition and Research | 3              |
| MTH 121 Precalculus I                | 3              | to | MATH ELEC                         | 3              |
| DAT 105 Introduction to Data Science | 3              | to | DSCI ELEC                         | 3              |
| Social/Behavioral Science            | 3              | to | Social/Behavioral Science ELEC    | 3              |
| Arts and Humanities                  | 3              | to | Arts and Humanities ELEC          | 3              |

**Semester 2**

| <b>Wor-Wic Community College</b>   | <b>Credits</b> |    | <b>Salisbury University</b>               | <b>Credits</b> |
|------------------------------------|----------------|----|---|----------------|
| ENG 151 Fundamentals of English II | 3              | to | ENGL LIT English Literature Elective      | 3              |
| MTH 122 Precalculus II             | 4              | to | MATH 140 College Algebra and Trigonometry | 4              |
| CMP 135 Intro to Programming       | 4              | to | COSC 117 Programming Fundamentals         | 4              |
| ELEC                               | 3              | to | ELEC                                      | 4              |

**Semester 3**

| <b>Wor-Wic Community College</b>        | <b>Credits</b> |    | <b>Salisbury University</b>                 | <b>Credits</b> |
|---|----------------|----|---|----------------|
| CMP 210 Computer Science I              | 4              | to | COSC 120 Computer Science I                 | 4              |
| MTH 152 Statistics                      | 3              | to | MATH 155 Modern Statistics w/ Comp Analysis | 3              |
| DAT 214 Statistics Lab for Data Science | 1              | to | MATH 214 Statistics Laboratory              | 1              |
| MTH 201 Calculus I                      | 4              | to | MATH 201 Calculus 1                         | 4              |
| Lab Science                             | 4              | to | Lab Science                                 | 4              |

**Semester 4**

| <b>Wor-Wic Community College</b> | <b>Credits</b> |    | <b>Salisbury University</b> | <b>Credits</b> |
|----------------------------------|----------------|----|-----------------------------|----------------|
| MTH 202 Calculus II              | 4              | to | MATH 202 Calculus 2         | 4              |
| Lab Science                      | 4              | to | Lab Science                 | 4              |
| Social/Behavioral Science        | 3              | to | Social/Behavioral Science   | 4              |
| ELEC                             | 3              | to | ELEC                        | 3              |