Cleveland State University and Cuyahoga Community College

Associate of Science with emphasis in Computer Science to Bachelor of Science in Data Science Transfer Pathway

Tri-C and Cleveland State work closely to keep transfer pathways current and accurate. Since program requirements can change over time, students should regularly meet with the Tri-C Campus Transfer Center or CSU to confirm that their academic plan continues to align with current requirements.

Disclaimer: *The fluidity of these pathways is acknowledged. At each level changes are possible as requirements, courses, course numbers, etc. may change. All efforts have been made to confirm the accuracy of the pathway by each institution. Always be aware of the date of review on the document. Always seek the assistance of an Academic Advisor or Counselor.*

Semester One Curriculum (Enrolled at Tri-C)

Tri-C Course	Credit Hours	CSU Equivalency
GEN 1070 First Year Success Seminar	0-1	**CSU 1XX** Lower-Division Elective
ENG 1010/H College Composition I	3	**ENG 101** College Writing I
MATH 1610/H Calculus I	5	**MTH 181** Calculus I
OT36 Arts & Humanities Elective*	3	
HIST 1500/H or POL 1000/H**# U.S. History to 1877: Civic Literacy or U.S. National Government: Civic Literacy	3	**HIS 111 -CL** United States History to 1877 or **PSC 111-CL** American Government
MET 1100 Technology Orientation^	2	**ESC 120** Introduction to Engineering Design
Semester Credit Hours Total	16-17	

Semester Two Curriculum (Enrolled at TRI-C)

Tri-C Course	Credit Hours	CSU Equivalency
ENG 1020/H College Composition II	3	**ENG 102** College Writing II
MATH 1620/H Calculus II	5	**MTH 182** Calculus II
PHYS 2310 General Physics I	5	**PHY 241** University Physics I
IT 1050/1051^ Introduction to Programming	3	**CIS 151** Invitation to Computing
Semester Credit Hours Total	16	

Semester Three Curriculum (Enrolled at TRI-C)

Tri-C Course	Credit Hours	CSU Equivalency
IT 2650/2651 Object-Oriented Programming	3	**CIS 260** Introduction to Programming
PHYS 2320 General Physics II	5	**PHY 242** University Physics II
MATH 2410 Linear Algebra	3	**MTH 288** Linear Algebra
OT36 Arts & Humanities Elective*	3	**COM 242** Public & Professional Speaking
OT36 Social & Behavioral Science**	3	
Semester Credit Hours Total	17	

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Semester Four Curriculum (Enrolled at TRI-C)

Tri-C Course	Credit Hours	CSU Equivalency
IT 2660 Data Structures & Algorithm	4	**CIS 265** Data Structures & Algorithms
MET 2422 Fundamentals of Engineering Economics	3	**ESC 282** Engineering Economy
MET 2430 Engineering Probability and Statistics	3	**ESC 310** Engineering Stats
CHEM 1300/L General Chemistry I and Laboratory	5	**CHM 261/6** General Chemistry I & Laboratory
Semester Credit Hours Total	15	

Tri-C Degree Attainment – Cumulative Total Credit Hours Earned: 64-65

Student will have earned the Cuyahoga Community College Associate of Science at the conclusion of the above curriculum pathway and all other applicable degree requirements.

Notes:

- New college students may be required during their first semester to participate in GEN-1070, First Year Success Seminar, a one-credit-hour course. See a Tri-C Counselor for details.
- *Arts and Humanities electives must represent two different disciplines
- **Social and Behavioral Science electives must represent two different disciplines
- #A Civic Literacy course must be completed prior to graduation at CSU, as required by the state. Approved Civic Literacy courses at Tri-C fulfill the American Civic Literacy Inquiry Core category at CSU.
- ^ MET 1100 can be substituted for the prerequisite course (IT 1025 or IT 1026)
- Students who do not complete OT36 or an associate degree will need to complete additional Inquiry Core Curriculum requirements at Cleveland State University.

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Semester Five Curriculum (Enrolled at CSU)

CSU Course	Credit Hours
DSA 230 Introduction to Data Science I	3
STA 347 Applied Statistics	3
CIS 340 Systems Programming	3
CIS 430 Database Concepts	3
STA 431 Categorical Data Analysis	3
Semester Credit Hours Total	15

Semester Six Curriculum (Enrolled at CSU)

CSU Course	Credit Hours
DSA 330 Introduction to Data Science II (WAC)	3
DSA 460 Data Mining	3
STA 400 Data Visualization	3
MTH 220 Introduction to Discrete Math	3
MTH 283 Multivariable Calculus for Engineers OR MTH 281 Multivariable Calculus	2-4
Semester Credit Hours Total	14-16

Semester Seven Curriculum (Enrolled at CSU)

CSU Course	Credit Hours
DSA 493 Senior Design I (WAC)	2
CIS 475 Computer Security	3
DSA 469 Big Data Processing Systems	3
CIS 390 Introduction to Algorithms	3
DSA Major Elective	3
Semester Credit Hours Total	14

Semester Eight Curriculum (Enrolled at CSU)

CSU Course	Credit Hours
DSA 494 Senior Design II	3
CIS 467 Artificial Intelligence	3
DSA Major Elective	3
DSA Major Elective	3
DSA Major Elective	3
PHL 216 AI & Data Ethics	3
Semester Credit Hours Total	18

Cleveland State University Degree Attainment – Cumulative Total Credit Hours Earned: 125-128

Student will have earned a Cleveland State University Bachelor of Science at the conclusion of the above curriculum pathway and all other applicable degree requirements.

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Notes:

- This map represents one example of how to complete the AS and BS degrees. Students should work closely with counselors/advisors at both institutions to discuss options.
- Assumptions: College-level readiness in MATH and ENG; no Foreign Language Deficiency (FLD). If a student has not completed 2 years of the same foreign language in high school, they will need to complete a 2-semester sequence at Tri-C or CSU.
- CSU requires a minimum of 120 total credit hours for graduation. At least 30 credits must be completed in-residence at CSU. At least 24 of the in-residence credits must be completed at the upper division (300/400) level. An overall total of 42 upper division (300/400) level credits are required. Students deficient in total credits or in-residence credits must take additional elective credits to meet the minimum requirements. Depending upon other elective choices made, students may not need as many general electives as indicated above, or may need additional electives.
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