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## ACADEMIC PROGRAM ARTICULATION AGREEMENT BETWEEN THE COLLEGE OF SOUTHERN MARYLAND

**AND** 

# MORGAN STATE UNIVERSITY REGARDING TRANSFER FROM ASSOCIATE OF SCIENCE DEGREE IN COMPUTER SCIENCE WITH CLOUD COMPUTING

TO

#### BACHELOR OF SCIENCE DEGREE IN CLOUD COMPUTING

This Academic Program Articulation Agreement ("Agreement") is entered into by and between The College of Southern Maryland (the "Sending Institution") and Morgan State University, an agency and instrumentality of the State of Maryland located at 1700 E. Cold Spring Lane, Baltimore, MD 21251 (the "Receiving Institution") (collectively, the "Institutions") to facilitate the transfer of academic credits from the Associate of Science in Computer Science with Cloud Computing program at the College of Southern Maryland, HEGIS 4980, CIP 510106 for the completion of the Bachelor of Science in Cloud Computing program at Morgan State University, HEGIS 0799, CIP 070101 (the "Program(s)").

#### A. Qualifying Students

This Agreement pertains to the transfer of qualifying students ("Qualifying Students"), *i.e.*, those students who:

- 1. Have successfully completed the Associates of Science in Computer Science with Cloud Computing degree program at the Sending Institution;
- 2. Are enrolled in the Sending Institution, in good standing;
- 3. Are accepted for admission to the Receiving Institution; and
- 4. Are transferring in 12 23 credits, must have earned a cumulative 2.0 GPA and meet SAT requirements. Those who are transferring in 24 or more credits, must have earned a cumulative 2.0 GPA.

#### **B.** Responsibilities of the Institutions

The Institutions agree to implement the transfer of Qualifying Students in accordance with all applicable laws, regulations, Morgan State University's Transfer Student Policy and the following requirements and protocols:

- 1. A Qualifying Student may transfer from the Sending Institution into the Receiving Institution for the completion of the Program.
- 2. Courses that the Receiving Institution will accept credits for towards completion of the Program are included in Appendix I-Course by Course Articulations.
- 3. A maximum of 70 credit hours from the Sending Institution or another public institution of higher education will be allowed towards fulfillment of the minimum one hundred and

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twenty (120) credit hours required for baccalaureate completion. The maximum number of credits that will be accepted by Morgan State University toward degree requirements from non-direct classroom instruction (including College Level Examination Program (CLEP), Advanced Placement (AP), International Baccalaureate (IB), and other select nationally recognized standardized examination scores, and other four-year institutions) is ninety (90) credits. If the course is evaluated by Sending institution and applied to the Associates degree or official transcript, the student must submit the official score report to be evaluated by Morgan State University, and credit will be applied as determined by a Morgan State University evaluation. It is possible that not all transferable credit accepted by Morgan State University will be applicable to the degree. Official transcripts from all previously attended institutions will also be required. All transfer students will be required to take a minimum of 30 credits of upper division coursework at Morgan State University, and the last 30 credit hours must be completed at Morgan State University. A minimum of 120 credits are required for the degree.

- 4. All required program courses must be completed with a grade of "C" or higher to earn transfer credit.
- 5. The Receiving Institution shall designate, and shall provide to the Sending Institution, the contact information for a staff person at the Receiving Institution who is responsible for the oversight of the transfer of Qualifying Students. The Sending Institution shall designate, and shall provide to the Receiving Institution, the contact information for a staff person at the Sending Institution who is responsible for the oversight of the transfer of Qualifying Students.

	College of Southern Maryland	Morgan State University
Name of staff person responsible for oversight	Jacqui Rogers-Frere	Rhonda Shields
Title of staff person	Coordinator of Transfer and Articulation	Associate Registrar
Email address	jgrogers@csmd.edu	rhonda.shields@morgan.edu
Telephone Number	301-934-7571	443-885-3395

Should an institution's designated staff person or position change, the institution will provide new contact information to the partner institution and inform the Maryland Higher Education Commission of the change.

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#### Additional contact information:

	College of Southern Maryland	Morgan State University
Name of person	Richard White	Susan Wrenn
Title of person	Program Coordinator	Transfer Program Coordinator & Community College Liaison
Email address	riwhite1@csmd.edu	susan.wrenn@morgan.edu
Telephone Number	301-934-7559	443-885-4663

- 6. If the Qualifying Student is using education benefits pursuant to Title 38 of the Code of Federal Regulations (GI Bill® Education Benefits), the Institutions shall adhere to all applicable U.S. Department of Veterans Affairs' regulations, including the regulations governing the awarding of prior credit, as regulated under Title 38, Code of Federal Regulations, Sections 21.4253(d)(3) and 21.4254(c)(4).
- 7. Each institution shall adhere to all applicable transfer requirements set forth in the Annotated Code of Maryland and the Code of Maryland Regulations and Morgan State University's Transfer Student Policy. In the event of any conflict between this Agreement and Morgan State University's Transfer Student Policy, the Policy shall prevail.
- 8. Each institution shall advise its students regarding transfer opportunities under this Agreement, and shall advise its students of financial aid opportunities and implications associated with the transfer. Appendix II outlines course requirements to be completed at Morgan. Appendix III is a Student Academic Advising Sheet outlining courses to take at the Sending Institution. Once students have been admitted to Morgan State University, as part of the standard Morgan onboarding process, the students will be contacted by the Office of Transfer Student Programming with instructions regarding orientation, advising, and registration (tsp@morgan.edu, https://www2.morgan.edu/tsp). Students who have satisfied the requirements of the articulation agreement will be given every consideration for financial assistance and will be eligible to compete for academic scholarships at Morgan. Financial aid and scholarship information may be found at https://www2.morgan.edu/financialaid.
- 9. Should either institution make changes to program requirements, the institution will inform the partner institution, in writing, immediately. This Agreement will be amended to reflect any such changes, pursuant to Section D(2) of this Agreement, and forwarded to the Maryland Higher Education Commission.

#### C. Term and Termination

1. This agreement shall commence on July 1, 2022 and end on June 30, 2024. If this Agreement is terminated, all students participating in the Program on or before the effective date of termination will be able to complete their studies in accordance with the terms of this Agreement that are relevant to their specific circumstances.

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- 2. Either institution may, at its sole discretion, terminate this Agreement upon delivering 30 days' written notice to the other institution and the Maryland Higher Education Commission.
- 3. Both Institutions agree to meet twice every year to review the terms of this Agreement.

#### D. Amendment

- 1. This Agreement, including its attachments and/or exhibits, constitutes the entire understanding and agreement of the Institutions with respect to their rights and obligations in carrying out the terms of the Agreement, and supersedes any prior or contemporaneous agreements or understandings.
- 2. This Agreement may be modified only by written amendment executed by both Institutions.

#### E. Governing Law

This Agreement shall be governed by, and construed in accordance with, the laws of the State of Maryland.

#### F. Counterparts

This Agreement may be executed in counterparts, each of which shall be deemed to be an original, but all of which, taken together, shall constitute one and the same agreement.

#### **G.** Notice of Agreement

- 1. The Institutions agree to provide a copy of this Agreement, with any amendments or subsequent amendments, to the Maryland Higher Education Commission.
- 2. The Institutions agree to provide executed copies of this Agreement to their respective relevant individuals and/or departments, including but not limited to students, academic department chairs participating in the transfer, offices of the president, registrar's offices, and financial aid offices. The office of record for program articulation agreements at Morgan State University is the Office of the Registrar.

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3. Any and all notices required to be given hereunder shall be sent registered or certified mail, postage prepaid, return receipt requested to the addresses as follows:

To: College of Southern Maryland Jacqui Rogers-Frere College of Southern Maryland Registrar's Office 8730 Mitchell Road La Plata, MD 20646

To: Morgan State University
Dr. David K. Wilson, President
Office of the President
Morgan State University
1700 East Cold Spring Lane
Truth Hall, Room 400
Baltimore, Maryland 21251

With a copy to: Rhonda Shields Morgan State University Office of the Registrar 1700 E. Cold Spring Lane 212 Tyler Hall Baltimore, MD 21251

Susan Wrenn Morgan State University Office of the Registrar 1700 E. Cold Spring Lane 212 Tyler Hall Baltimore, MD 21251

#### H. No Third-Party Beneficiaries

There are no third-party beneficiaries to this Agreement.

#### I. Representations and Warranties of the Parties

Both Institutions represent and warrant that the following are true and correct, and shall continue to be true and correct during the term of this Agreement:

1. The Institutions are and shall remain in compliance with all applicable federal, state, and local statutes, laws, ordinances, and regulations relating to this Agreement, as amended from time to time, including, but not limited to, the provisions of the Family Educational Rights

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and Privacy Act ("FERPA") (20 U.S.C. § 1232g; 34 C.F.R. Part 99) and the Health Insurance Portability and Accountability Act ("HIPAA") (Pub.L. 104-191).

2. Each Institution has taken all action necessary for the approval and execution of this Agreement.

#### J. Morgan State University

Morgan State University represents and warrants that it is an agency and instrumentality of the State of Maryland, acting in its higher education capacity, and has the legal capacity to enter into this Agreement. Nothing in the terms of this Agreement shall abrogate the responsibilities assigned to Morgan State University under applicable state and federal laws and regulations, or the policies of Morgan State University's Board of Regents for the development of curricula, the assessment of student learning, the transfer of students, nor the award of academic degrees.

#### **K.** Limited Liability

The College of Southern Maryland acknowledges that Morgan State University is a Maryland State agency and is self-insured. Limits of liability are governed by the Maryland Tort Claims Act, Title 12, Subtitle 1, of the State Government Article, Maryland Annotated Code.

#### L. Severability

If any section or provision of this Agreement is held illegal, unenforceable or in conflict with any law by a court of competent jurisdiction, such section or provision shall be deemed severed and the validity of the remainder of this Agreement shall not be affected thereby.

#### M. Independent Contractor Status

The Institutions hereby acknowledge that they are independent contractors, and neither is the agent, employer or servant of the other. In no event shall this Agreement be construed as establishing a partnership, joint venture or similar relationship between the Institutions hereto.

#### N. Non-Discrimination

The Institutions agree to comply with Titles VI and VII of the Civil Rights Act of 1964, Section 504 of the Rehabilitation Act of 1973, Executive Order 11246, and the Americans with Disabilities Act of 1990 and the related regulations of each. Each institution agrees that it will not discriminate against any individual including, but not limited to Qualifying Students, because of race, religion, creed, color, sex or sexual orientation, marital status, gender identity or expression, age, physical or mental disability, veteran status, political affiliation, non-disqualifying handicap, or national or ethnic origin.

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#### O. Compensation

There shall be no monetary consideration paid to either institution; it being acknowledged that the transfer of academic credits provided hereunder is mutually beneficial.

#### P. Authority

The persons executing this Agreement on behalf of the Institutions hereby represents and warrants that the institution they represent is a duly formed, validly existing entity qualified to do business in the State of Maryland, that the institution has full power and authority to enter into this Agreement, and that the person is authorized to execute this Agreement on behalf of the institution the person is representing.

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

#### APPENDICES

As part of this agreement, the following have been included:

- 1. Course-by-course articulations
- 2. Upper division requirements to be completed at Morgan State University
- 3. An academic advising sheet showing requirements for completion of the degree at the Sending Institution.

These appendices may be changed, by mutual agreement, after adequate notice, defined as one calendar year, without the procedural process review or revision of the entire articulation agreement.

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#### APPENDIX 1—COURSE-BY-COURSE ARTICULATIONS

	College of Southern Maryland (Sending Institution)		Morgan State University (Receiving Institution)			
2021-202	22 Catalog - Computer Science with C Computing, AS	<u>loud</u>		2020-2022 Catalog - Clo	ud Comp	outing, BS
	<b>General Education Listing</b>			<b>General Education Requirem</b>	ents Dist	ribution Areas
Course Number	Course Name	Credits	Course Number	ICourse Name		Applied to <sup>1</sup>
ENG-1010	Composition and Rhetoric	3	ENGL 101	Freshman Composition (EC)	3	General Education (EC)
ENG-1020	Composition and Literature	3	ENGL 102	Freshman Composition II (EC)	3	General Education (EC)
			MATH 113	Introduction to Mathematical Analysis I <sup>2</sup>	4	Mathematics and Quantitative Reasoning (MQ)
ххх	Courses from Biological Sciences, Chemistry, Environmental Science, Geology, Physics (Must be 4cr sequence)(1)	4	ххх	Biological and Physical Science – Lab Science (BP) Strongly Recommended: CHEM 101 and CHEM 101L - General Chemistry (3 cr + 1 cr)	4	Biological and Physical Science - Lab science (BP)
ххх	Courses from Astronomy, Biological Sciences, Chemistry, Environmental Science, Geology, Geography, Physics. (2)	3	ххх	Biological and Physical Science – Non-Lab Science (BP) Strongly Recommended: EASC 102 - Meteorology	3	Biological and Physical Science – Non-Lab Science (BP)
ECN-1200	Introduction to Economics	3	ххх	Social and Behavioral Science (SB) Strongly Recommended: HIST 101 - World History I	3	Social and Behavioral Science (SB)
ххх	Courses from Social/Behavioral sciences (3) (from 2 different disciplines)	3	ххх	Social and Behavioral Science (SB) Strongly Recommended: PSYC 101 - General Psychology	3	Social and Behavioral Science (SB)
BIO-2160	Principles of Nutrition <sup>3</sup>	3	NUSC 160	Introduction to Nutrition	3	Health and Healthful Living (HH)
PHL-1020	Introduction to Logic <sup>3</sup>	3	PHL 109	Introduction to Critical Thinking	3	Critical Thinking (CT)

<sup>&</sup>lt;sup>1</sup> For each course listed, the Receiving Institution must indicate if the course is applied to general education, program/major requirements, or general elective.

<sup>&</sup>lt;sup>2</sup> denotes a department required supporting/major course which may fulfill a general education requirement and must be completed with a grade of "C" or higher

<sup>&</sup>lt;sup>3</sup> Students can choose to take these courses at the College of Southern Maryland, however, please consult Financial Aid as these courses are outside the Associate of Science in Computer Science.

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ххх	Art/Humanities with Cultural and Global Awareness <sup>3</sup>	3	ххх	Contemporary and Global Issues, Ideas and Values (CI)	3	Contemporary and Global Issues, Ideas and Values (CI)			
			ххх	Arts & Humanities (AH) Strongly Recommended: PHIL 220 - Ethics and Values	3	Arts & Humanities (AH)			
			ххх	Arts & Humanities (AH) Strongly Recommended: COMM 203 - Media Literacy in a Diverse World	3	Arts & Humanities (AH)			
xxx	Wellness, Fitness, and Sports <sup>3</sup> (Except WFS 1401, 1701, 1750, 1760, 1770,1775, 1790)	1	ххх	Physical Education Activity or Financial Literacy (FIN 101) or Special Topics in Mindfulness (MIND 101)	1				
COSC-2591	Computer Science I	3	COSC 111	Introduction to Computer Science I <sup>2</sup>	4	Computer Science Supporting Course and Information, Technological and Media Literacy (IM)			
	Free Electives								
ITS-1050	Computing Essentials	3	XXX	Lower-Level Elective	3				
MTH-1015	Intro to Statistics	3	XXX	Lower-Level Elective	3				
	Total General Education Transfer Credits	38		Total General Education Credits	49				
		Sı	pporting Co	ourses					
			MATH 113	Introduction to Mathematical Analysis I	-				
			MATH 114	Introduction to Mathematical Analysis II	4				
MTH-1200	Calculus I and Analytic Geometry	4	MATH 241	Calculus I	4				
MTH-2220	Introduction to Linear Algebra	4	MATH 312	Linear Algebra I	3				
			BUAD 200	Introduction to Business for Non-Business Majors	3				
	Total Supporting Course Transfer Credits	8		Total Supporting Course Credits	14				
			gram Requi						
In order to sa	atisfy Cloud Computing major requirer	nents, st	udents must	· ·	elow wit	th grades of "C" or higher.			
CSC-2591	Computer Science I	-	COSC 111	Introduction to Computer Science I <sup>2</sup>	-				
CSC-2592	Computer Science II	4	COSC 112	Introduction to Computer Science II	4				
CSC-2740	Data Structures & Algorithm	4	COSC 220	Data Structures & Algorithm Analysis	4				
			COSC 241	Computer Systems and Digital Logic	3				

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MTH-2500	Introduction to Discrete Math	3	COSC 281	Discrete Structures	3	
			COSC 349	Computer Networks	3	
ITS-2090	Computer Security	3	COSC 351	Cybersecurity	3	
			COSC 354	Operating Systems	4	
ITS-2400	Introduction to Cloud Computing	3	CLCO 261	Introduction to Cloud Computing	3	
			CLCO 401	Cloud Applications	3	
			CLCO 490	Senior Project in Cloud Computing	3	
	Total Program Transfer Credits	17	Total	Total Program Credits	33	
	Program	n Electiv	e Courses f	rom 2XX-4XX Levels		
			•	ectives: Choose two (2)	6	
			courses		credits	
			COSC 238	Object Oriented Programming	4	
			COSC 239	Java Programming	3	
CSC-2750	Computer Architecture	4	COSC 243	Computer Architecture	3	
ITS-2480	Data Analytics	3	COSC 251	Introduction to Data Science	3	
MTH-2500	Introduction to Discrete Math	3	COSC 281	Discrete Structure	3	
			MATH 242	Calculus II	4	
<b>I</b>			Group B Electives: Choose three (3)			
			•	ectives: Choose three (3)	9	
			Group B Electorises		9 credits	
			•	Algorithm Design and Analysis	_	
			courses	Algorithm Design and Analysis Introduction to Cryptography	credits	
			courses COSC 320	Algorithm Design and Analysis Introduction to	credits 3	
			courses  COSC 320  COSC 323	Algorithm Design and Analysis Introduction to Cryptography Introduction to Game	credits 3	
			courses COSC 320 COSC 323 COSC 332	Algorithm Design and Analysis Introduction to Cryptography Introduction to Game Design and Development Network Security Fundamentals Numerical Methods and Programming	3 3 3	
			COSC 320 COSC 323 COSC 332 COSC 358	Algorithm Design and Analysis Introduction to Cryptography Introduction to Game Design and Development Network Security Fundamentals Numerical Methods and Programming Theory of Languages and Automata	3 3 3 3	
			courses COSC 320 COSC 323 COSC 332 COSC 358 COSC 383	Algorithm Design and Analysis Introduction to Cryptography Introduction to Game Design and Development Network Security Fundamentals Numerical Methods and Programming Theory of Languages and	3 3 3 3 3 3	
			COSC 320  COSC 323  COSC 332  COSC 358  COSC 383  COSC 385  COSC 386	Algorithm Design and Analysis Introduction to Cryptography Introduction to Game Design and Development Network Security Fundamentals Numerical Methods and Programming Theory of Languages and Automata Introduction to Quantum Computing Linear Algebra II	3 3 3 3 3 3 3	
			COSC 320  COSC 323  COSC 332  COSC 358  COSC 383  COSC 385  COSC 386	Algorithm Design and Analysis Introduction to Cryptography Introduction to Game Design and Development Network Security Fundamentals Numerical Methods and Programming Theory of Languages and Automata Introduction to Quantum Computing	3 3 3 3 3 3	
			COSC 320  COSC 323  COSC 332  COSC 358  COSC 383  COSC 385  COSC 386  MATH 313	Algorithm Design and Analysis Introduction to Cryptography Introduction to Game Design and Development Network Security Fundamentals Numerical Methods and Programming Theory of Languages and Automata Introduction to Quantum Computing Linear Algebra II Applied Probability and	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	
			COURSES  COSC 320  COSC 323  COSC 332  COSC 358  COSC 385  COSC 385  COSC 386  MATH 313  MATH 331  EEGR 317  Group C Electrical	Algorithm Design and Analysis Introduction to Cryptography Introduction to Game Design and Development Network Security Fundamentals Numerical Methods and Programming Theory of Languages and Automata Introduction to Quantum Computing Linear Algebra II Applied Probability and Statistics	3 3 3 3 3 3 4 15	
			COURSES  COSC 320  COSC 323  COSC 332  COSC 358  COSC 383  COSC 385  COSC 386  MATH 313  MATH 331  EEGR 317  Group C Electorses	Algorithm Design and Analysis Introduction to Cryptography Introduction to Game Design and Development Network Security Fundamentals Numerical Methods and Programming Theory of Languages and Automata Introduction to Quantum Computing Linear Algebra II Applied Probability and Statistics Electronic Circuits	3 3 3 3 3 3 4	

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		COSC 459	Database Design	3	
			Artificial Intelligence	3	
		COSC 472	Introduction to Machine Learning	3	
		COSC 486	Applied Quantum Computing	3	
		COSC 491	Conference Course	3	
		COSC 498	Senior Internship <sup>4</sup>	3	
		COSC 499	Senior Research OR Teaching/Tutorial Assistantship <sup>3</sup>	3	
		CLCO 471	Data Analytics in Cloud	3	
		Group D El course	ectives: Choose one (1)	3 credits	
		MATH 345	Mathematics for Insurance and Investment	3	
		MATH 346	Financial Mathematics	4	
		MATH 361	Introduction to Mathematical Modeling	3	
		BUAD 326	Business and Society: Ethics and Sustainability	3	
		INSS 391	IT Infrastructure and Security	3	
		INSS 494	Information Security and Risk Management	3	
		EEGR 481	Introduction to Network Security	3	
		EEGR 483	Introduction to Security Management	3	
		хххх	300 - 400 Level COSC Course (Not Previously Taken)	3	
Total Elective Transfer Credits	10		<b>Total Elective Credits</b>	33	
TOTAL POTENTIAL TRANSFER CREDITS	73	TOTAL	CREDITS TO BE TAKEN AT MSU	50	
MAXIMUM ACCEPTED TRANSFER CREDITS <sup>5</sup>	70		TOTAL CREDITS FOR DEGREE PROGRAM	120	

<sup>&</sup>lt;sup>4</sup> Prerequisite(s) for course: Must have 3.0 GPA and must be Senior standing, and Department Chair permission required to register.

<sup>&</sup>lt;sup>5</sup> Students are eligible to transfer <u>up to 70 credits</u> to Morgan State University.

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## APPENDIX II-COURSE REQUIREMENTS TO BE FULFILLED AT MORGAN STATE UNIVERSITY

Bachelor of Science Degree in Computer Science (120 credits)

All transfer students will be required to take a minimum of 30 credit hours of upper division coursework at Morgan State University. A minimum total of 120 credits are required for the degree. Completion of the specified program requires students to successfully complete the following course work:

Course			
Number	Course Name	Credits	Explanation <sup>6</sup>
	General Education and Univ	ersity Requ	uirements
ENGL 101	Freshman Composition (EC)	3	General Education (EC)
ENGL 102	Freshman Composition II (EC)	3	General Education (EC)
MATH 113	Introduction to Mathematical Analysis I <sup>7</sup>	4	Mathematics and Quantitative Reasoning (MQ)
NUSC 160	Introduction to Nutrition	3	Health and Healthful Living (HH)
COSC 111	Introduction to Computer Science I <sup>7</sup>	4	Computer Science Supporting Course and Information, Technological and Media Literacy (IM)
ххх	Biological and Physical Science – Lab Science (BP)  Strongly Recommended: CHEM 101 and CHEM 101L - General Chemistry (3 credits + 1 credit)	4	Biological and Physical Science - Lab science (BP)
ххх	Biological and Physical Science – Non-Lab Science (BP) Strongly Recommended: EASC 102 - Meteorology	3	Biological and Physical Science – Non- Lab Science (BP)
ххх	Social and Behavioral Science (SB)  Strongly Recommended:  HIST 101 - World History I	3	Social and Behavioral Science (SB)
ххх	Social and Behavioral Science (SB)  Strongly Recommended:  PSYC 101 - General Psychology	3	Social and Behavioral Science (SB)
ххх	Arts & Humanities (AH) Strongly Recommended: PHIL 220 - Ethics and Values	3	Arts & Humanities (AH)
ххх	Arts & Humanities (AH) Strongly Recommended: COMM 203 - Media Literacy in a Diverse World	3	Arts & Humanities (AH)

<sup>&</sup>lt;sup>6</sup> For each course listed, the Receiving Institution must indicate if the course is applied to general education, program/major requirements, or general elective.

Morgan OGC & MHEC Approved Articulation Agreement

<sup>&</sup>lt;sup>7</sup> denotes a department required supporting/major course which may fulfill a general education requirement and must be completed with a grade of "C" or higher

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PHL 109	Introduction to Critical Thinking	3	Critical Thinking (CT)
XXX	Courses from Interdisciplinary/ Emerging Issues	3	Contemporary and Global Issues, Ideas and Values (CI)
ххх	Physical Education Activity or Financial Literacy (FIN 101) or Special Topics in Mindfulness (MIND 101)	1	, ,
	Total	43	
Please see	General Education Requirements Distribution	Areas for	courses that satisfy General
Education	Requirements where it is not specified by the	departmen	t.
	Required Cloud Computin	ng Major Co	ourses
In order to	o satisfy Cloud Computing major requirements, stu grades of "C" or		complete the courses listed below with
COSC 111	Introduction to Computer Science I <sup>7</sup>	-	
COSC 112	Introduction to Computer Science II	4	
COSC 220	Data Structures & Algorithm Analysis	4	
COSC 241	Computer Systems and Digital Logic	3	
COSC 349	Computer Networks	3	
COSC 351	Cybersecurity	3	
COSC 354	Operating Systems	4	
CLCO 261	Introduction to Cloud Computing	3	
CLCO 401	Cloud Applications	3	
CLCO 490	Senior Project in Cloud Computing	3	
	Total Program Credits	30	
	Supporting Co	ourses	<u></u>
<b>MATH 113</b>	Introduction to Mathematical Analysis I	-	
	1		

	Cloud Computing	Electives	
	Total	14	
BUAD 200	Introduction to Business for Non-Business Majors	3	
MATH 312	Linear Algebra I	3	
MATH 241	Calculus I	4	
MATH 114	Introduction to Mathematical Analysis II	4	
MATH 113	Introduction to Mathematical Analysis I	-	

### Cloud Computing Electives 2XX-4XX Level Courses

Group A El	ectives: Choose three (3) courses	9 credits	
COSC 238	Object Oriented Programming	4	
COSC 239	Java Programming	3	
COSC 243	Computer Architecture	3	
COSC 251	Introduction to Data Science	3	
CLCO 261	Introduction to Cloud Computing	3	

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Group B El	ectives: Choose two (2) courses	6 credits	
COSC 320	Algorithm Design and Analysis	3	
COSC 323	Introduction to Cryptography	3	
COSC 332	Introduction to Game Design and Development	3	
COSC 338	Mobile App Design & Development	3	
COSC 383	Numerical Methods and Programming	3	
COSC 386	Introduction to Quantum Computing	3	
MATH 313	Linear Algebra II	3	
EEGR 317	Electronic Circuits	4	
Group C El	ectives: Choose five (5) courses	15 credits	
COSC 460	Computer Graphics	3	
COSC 470	Artificial Intelligence	3	
COSC 472	Introduction to Machine Learning	3	
COSC 480	Introduction to Image Processing and Analysis	3	
COSC 486	Applied Quantum Computing	3	
COSC 491	Conference Course	3	
COSC 498	Senior Internship <sup>8</sup>	3	
COSC 499	Senior Research OR Teaching/Tutorial Assistantship <sup>8</sup>	3	
CLCO 411	Cloud Security	3	
CLCO 471	Data Analytics in Cloud	3	
•	ectives: Choose one (1) course rel Computer Science Course usly Taken)	3 credits	
INSS 391	IT Infrastructure and Security	3	
EEGR 481	Introduction to Network Security	3	
EEGR 483	Introduction to Security Management	3	
INSS 494	Information Security and Risk Management	3	
	TOTAL ELECTIVE CREDITS	33	
	TOTAL CREDITS TO BE TAKEN AT MSU	50	
TOTAL	CREDITS REQUIRED FOR DEGREE PROGRAM	120	

<sup>&</sup>lt;sup>8</sup> Prerequisite(s) for course: Must have 3.0 GPA, must be Senior standing, and Department Chair permission required to register.

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#### APPENDIX III: STUDENT ACADEMIC ADVISING SHEET

College of Southern Maryland 2021-2022 Academic Catalog

Thank you for your interest in the articulated academic plan for the Associate of Science in Computer Science with Cloud Computing. Successful completion of this program will ensure a smooth transition to Morgan State University.

				Grade	Grade
Course	Course Title	Credit	Completed	Received	Required
ENG-1010	Composition & Rhetoric	3	•		C or better
ENG-1020	Composition & Literature	3			C or better
MTH-1200	Calculus I & Analytic Geometry	4			C or better
XXX	Arts and Humanities with Cultural and Global Awareness	3			D or better
xxx	Courses from Biological Sciences, Chemistry, Environmental Science, Geology, Physics (Must be 4 credit sequence)	4			D or better
XXX	Courses from Astronomy, Biological Sciences, Chemistry, Environmental Science, Geology, Geography, Physics	3			D or better
ECN-1200	Introduction to Economics	3			D or better
XXX	Courses from Social/Behavioral sciences (3) (from 2 different disciplines)	3			D or better
CSC-1110	Program Design and Development	3			D or better
CSC-2591	Computer Science I	4			C or better
CSC-2592	Computer Science II	4			C or better
CSC-2740	Data Structures & Algorithms	4			C or better
ITS-2480	Data Analytics	3			C or better
ITS-2400	Introduction to Cloud Computing	3			C or better
ITS-2090	Computer Security	3			C or better
MTH-1015	Introduction to Statistics	3			D or better
ITS-1050	Computing Essentials	3			D or better
CSC-2750	Computer Architecture	4			C or better
Program El	ectives for Potential Morgan State	University	Transfers		
PHL-1020	Introduction to Logic	3			D or better
BIO-2160	Principles of Nutrition	3			D or better
MTH-2220	Introduction to Linear Algebra	4			C or better
MTH-2500	Introduction to Discrete Mathematics	3			C or better
	TOTAL POTENTIAL TRANSFER CREDITS/MAXIMUM TRANSFER CREDITS	73/70			

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**Application Deadline:** To be admitted you will need to have the following credits and grade point average (GPA requirements):

• 12-23 credits, a 2.0 GPA, and meet SAT requirements

• 24 or more credits, a 2.0 GPA

**Fall Semester:** Nov 15 (priority); Feb 15 (regular)

**Spring Semester:** January 15

Application fee: \$35.00 online/\$45.00 paper

Students shall apply for admission to Morgan State University, indicating Computer Science as the intended major. Applications for admission can be obtained by contacting the Office of Admission and Recruitment at:

https://www.morgan.edu/office-of-undergraduate-admissions-and-recruitment/how-to-apply/transfer-applicants

All required application materials must be supplied by the deadline.