COLORADO DEPARTMENT OF HIGHER EDUCATION

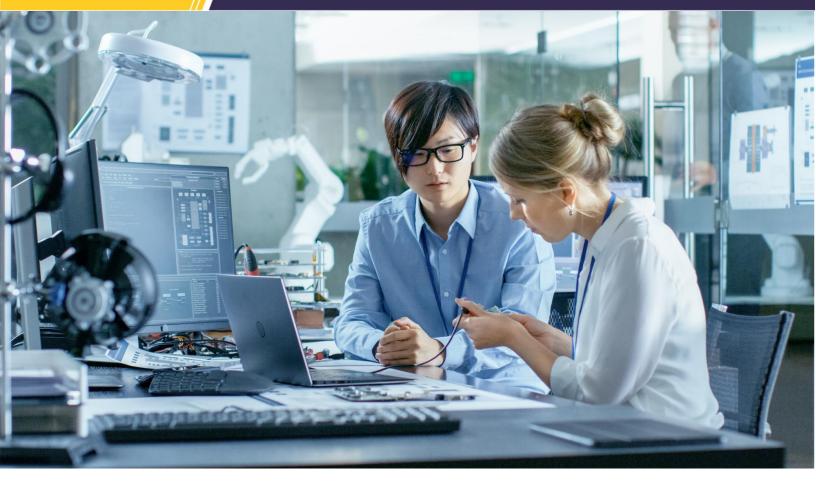# Statewide Transfer Articulation Agreement *in*

Computer Science

Chart Your Career Course

There is more than one path to a fulfilling career, and the road to a bachelor's degree can start at a community college. Colorado's public colleges and universities have created a seamless transfer process that makes it easy and stress-free for you to design an education journey that will meet your needs. Select a 60-credit Associate of Arts (AA) or Associate of Science (AS) degree with Designation (DwD) program that aligns with your interests, with the guarantee that it will put you on the fast track to graduation if you choose to pursue a bachelor's degree.

COMPUTER SCIENCE

Introduction

With an ever-increasing demand for new and better technologies, there are limitless opportunities for computer science professionals. Once a career path that led straight to Silicon Valley, now businesses all over the world are seeking software systems experts. From web developers to information security analysts, a background in computer science can be used to create in the digital world or find ways to protect it. If you have patience, show great attention to detail, and enjoy work that requires a high level of precision, computer science may be the field for you.

In an associate program in Computer Science, you will study data structures, learn about computer networks and data management systems, and explore programming and coding languages. This degree is transferable to universities offering bachelor's degrees in Computer Science, Mathematics, and Applied Math Emphasis.

Degree Pathway

The first year of a Computer Science program will include math and English courses to meet general education requirements. The completion of introductory math and English courses in your first year is proven to greatly increase the likelihood of crossing the graduation stage, boosting your momentum along the degree pathway you select. Other general education courses on your pathway will cover topics in Arts and Humanities, History, Social and Behavioral Sciences, and Natural and Physical Sciences.

Program-specific courses may begin as soon as your first semester. These courses will become more advanced as you move along your degree pathway. Through this sequence of courses, your knowledge of technology, software creation, and data analysis will grow and deepen. Coursework will include Computer Science, Computer Architecture, and Programming. After completing a 60-credit associate degree, your degree pathway can continue with guaranteed transfer to a college that offer's bachelor's degrees.

Knowledge & Skills

- Computer and technology knowledge
- Software development
- Technical writing
- Analytical skills
- Abstraction
- Decomposition
- Pattern recognition
- Algorithmic design
- Critical thinking
- Problem solving
- Communication skills
- Attention to detail

COMPUTER SCIENCE

Participating Institutions

Earn an Associate Degree with Designation (DwD)

From one of these Colorado public community/junior colleges

Aims Community College [A.S. Computer Science]*

Arapahoe Community College [A.S. Computer Science]

Colorado Mountain College [A.S. Computer Science]

Colorado Northwestern Community College [A.S. Computer Science]

Community College of Aurora [A.S. Computer Science]

Community College of Denver [A.S. Computer Science]

Front Range Community College [A.S. Computer Science]

Morgan Community College [A.S. Computer Science]

Northeastern Junior College [A.S. Computer Science]

Pikes Peak State College [A.S. Computer Science]

Pueblo Community College [A.S. Computer Science]

Red Rocks Community College [A.S. Computer Science]

Trinidad State College [A.S. Computer Science]

Earn a Bachelor's Degree

From one of these Colorado public four-year institutions

Adams State University
[B.S. Computer Science]

Colorado Mesa University
[B.S. Computer Science]

Colorado State University
[B.S. Computer Science]

Metropolitan State University of Denver
[B.S. Computer Science]

University of Colorado Boulder
[B.A. Computer Science]**

University of Colorado Colorado Springs
[B.S. Computer Science]

University of Colorado Denver
[B.A. Computer Science]**

University of Northern Colorado
[B.S. Computer Science]

Western Colorado University
[B.S. Computer Science]

* Aims Community College does not currently offer CSC 165/2065 or CSC 225/2025. Aims students should talk to their academic advisor about cooperative registration agreement options with CSU and UNC.

** For both the University of Colorado Boulder and the University of Colorado Denver, this agreement applies only to the Bachelor of Arts degree in Computer Science. Students who are interested in the Bachelor of Science degree in Computer Science should contact a program advisor at CU Boulder or CU Denver as early as possible.

Prescribed Curriculum

COMPUTER SCIENCE

Required Courses that Fulfill General Education Requirements			**33** CREDIT HOURS
	Credit Hours	**Community College Course No.**	**Course Title or Category**
(Written) Communication	6		Any (GT-CO1) course plus any (GT-CO2) course -OR- Any (GT-CO2) course plus any (GT-CO3) course
Mathematics	5	MAT 201/2410	Calculus I (GT-MA1) (Additional coursework might be required to meet prerequisite requirements for calculus. Pre-requisite courses may apply toward elective credit hours.)
Arts & Humanities	6		Any two GT Pathways Arts & Humanities courses (GT-AH1, GT-AH2, GT-AH3, GT-AH4)
History	3		Any one GT Pathways History course (GT-HI1)
Social & Behavioral Sciences	6		Any two GT Pathways Social & Behavioral Sciences courses (GT-SS1, GT-SS2, GT-SS3)
Natural & Physical Sciences[1]	7		Select from GT-SC1/GT-SC2 courses, one must be with a laboratory (GT-SC1). GT-SC1/GT-SC2 courses in sequence (same discipline) are recommended (and may be required depending on the receiving institution—consult the advising office). Courses must be selected in consultation with the advising office from the community college and from the intended transfer institution, if known. Seven credit minimum; additional credits in this area will be applied toward electives.

Additional Required Courses			**12** CREDIT HOURS
	Credit Hours	**Course No.**	**Course Title**
Computer Science	8	CSC 160/1060 and CSC 161/1061	Computer Science I[2] & II (Courses must be selected in consultation with the advising offices to ensure that the courses taken are in the preferred programming language. Additional coursework might be required to meet pre-requisite requirements for Computer Science I. Pre-requisite courses may apply toward elective credit hours.)
	4	CSC 225/2025	Computer Architecture/Assembly Language Programming **Not required at CU Denver; would transfer as free elective*

Please note: If these credits are *not* required for the *major* at a receiving 4-year institution, they will be applied to the bachelor's degree as *elective credit* toward *graduation.* Please check with the receiving institution to determine in which ways these courses will be applied.

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[1] For students intending to transfer to the University of Colorado Denver, students must complete one GT-SC1 course and one of the following: BIO 1111 or CHE 1111 or PHY 1111 or PHY 2111.

[2] Students who earn a score of 3 or above on the Advanced Placement (AP) Computer Science exam will receive credit for this course.

COMPUTER SCIENCE

Free Electives			15 CREDIT HOURS
	Credit Hours	**Course No.**	**Course Title**
Required for most CS programs at most four-year institutions – consult an academic advisor at the intended transfer institution	5	MAT 202/2420	Calculus II (GT-MA1)
Required for ASU, CSU, CU Boulder & UNC	4	CSC 165/2065	Discrete Structures (CSU will also accept MAT 215/2520 as an alternative to CSC 165/2065)
Required for ASU, CU Boulder & UNC	3	MAT 255/2540	Linear Algebra
	4/5	MAT 203/2430 **-OR-** MAT 204/2431	Calculus III (GT-MA1) **-OR-** Calculus with Engineering Applications (GT-MA1)
Required for CSU	4	CSC 234/2034[3]	C++ Programming

	Total	60 CREDIT HOURS

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[3] CSC 234/2034 is available only at certain CCCS institutions. Students planning to transfer to CSU should consult an academic advisor about options for taking this course at Front Range or Arapahoe Community College and transferring the credits back to your home institution. Both CSC 165/2065 and CSC 234/2034 are available through Colorado State University Online as CS220 and CS253, respectively. Consult your academic advisor about registration and reverse transfer options.

Revised: August 2024

COMPUTER SCIENCE

Course Planner

COMPUTER SCIENCE DEGREE PLAN

STUDENT NAME

Institution:				
Semester	**Course No.**	**Course Title**	**Credit Hours**	**Completed**
			Total Credits Completed	

Institution:				
Semester	**Course No.**	**Course Title**	**Credit Hours**	**Completed**
			Total Credits Completed	

Institution:				
Semester	**Course No.**	**Course Title**	**Credit Hours**	**Completed**
			Total Credits Completed	

Institution:				
Semester	**Course No.**	**Course Title**	**Credit Hours**	**Completed**
			Total Credits Completed	

COMPUTER SCIENCE

Contractual Language

> ### INTRODUCTION
>
> A statewide transfer articulation agreement identifies the community college courses students need to take in order to graduate from a community college with a 60-credit Associate of Arts (AA) or Associate of Science (AS) degree with designation (DwD). Students are responsible for informing the admissions counselor or transfer advisor at their receiving four-year institution that they are completing a DwD.
>
> It is important for students to understand that completion of an AA or AS degree within two years requires them to complete an average of 15 credits per semester (or 30 credits per year). Also, research shows that students who take classes in their major area within their first 30 credit hours are more likely to persist and graduate.
>
> The guarantees and limitations below describe the minimum requirements to which all participating institutions have agreed. Students who believe an institution is not meeting the guarantees described below can file a complaint with the CDHE.

GUARANTEES

Students who complete a DwD pursuant to the prescribed curriculum in this statewide transfer articulation agreement **and** pass all 60 credits with a C- or higher **and** are admitted to the receiving institution's corresponding degree program (see cover page) are guaranteed the following:

1. Junior standing with no more than 60 remaining credits (or up to 68 remaining credits for Computer Science, depending on the institution) to meet the graduation requirements for the baccalaureate degree program covered by this articulation agreement.

2. Completion of the receiving institution's lower division general education requirements as defined by the GT Pathways curriculum.

3. The same graduation requirements as students who begin and complete this degree program at the four-year institution.

4. Admission to all Colorado public baccalaureate awarding institutions (*except* Colorado School of Mines) is guaranteed to applicants who have completed any AA or AS degree from a Colorado public two-year institution after high school graduation, provided certain requirements are met. To see these requirements, please refer to the Colorado Commission on Higher Education's Admissions Standards Policy, section titled "Guaranteed Transfer Admissions" here.

5. Per the Commission's Prior Learning Assessment policy, section 2.07, and pursuant to Colorado Revised Statutes §23-1-108 (7)(b)(II)(A), "a state institution of higher education that admits as a junior a student who holds an associate of arts degree, associate of applied science degree, or associate of science degree that is the subject of a statewide degree transfer agreement shall not require the student to complete any additional courses to fulfill general education requirements", and that the receiving institution of higher education is responsible for the total cost of tuition "for any credit hours that exceed the total credit hours required for a native student or that extend the total time to receive the degree beyond that required for a native student".

6. The Commission's Prior Learning Assessment policy also states "every Colorado public institution of higher education shall accept in transfer from within the institution and from other state institutions of higher education prior learning assessment credit awarded for GT Pathways requirements" (section 3.01), and "Colorado public institutions of higher education shall not prohibit students from meeting general education/GT Pathways requirements with prior learning assessment credit" (section 3.02).

Revised: August 2024

COMPUTER SCIENCE

LIMITATIONS

1. Students must meet all admission and application requirements at the receiving institution including the submission of all required documentation by stated deadlines. Students are advised to consult with the Office of Admissions at the institution to which they intend to transfer.

2. Only courses with grades of C- or higher are guaranteed to transfer.

3. Admission to a receiving institution does not guarantee enrollment in a specific degree program. Some programs at receiving institutions have controlled entry due either to space limitations or academic requirements.

4. The credit and course transfer guarantees described in this agreement apply to the specific degree programs covered by this agreement (see cover page). If the student changes majors, receiving institutions will evaluate application of the courses designated in this agreement to other degree programs on a course-by-course basis.

5. Students are allowed to use credits awarded by exam, such as AP (Advanced Placement) and IB (International Baccalaureate), as long as those exams are listed on the exam tables here, or may use challenge exams to fulfill GT Pathways requirements (not necessarily major requirements) and those credits are guaranteed to transfer and apply to GT Pathways requirements at the receiving institution per the Colorado Commission on Higher Education's Policy I, X: Prior Learning Assessment. See the entire policy for more information.

6. The receiving institution shall accept all applicable credits earned within ten years of transfer to the receiving institution. Credits earned more than ten years earlier will be evaluated on a course-by-course basis.

7. All the courses a student needs to take in the associate degree program covered by this statewide transfer articulation agreement are listed in the prescribed curriculum. Course substitutions are allowed as long as the student and both the sending and receiving institutions agree to the substitution; such agreement should be documented in writing and the student should keep a copy until the baccalaureate degree is conferred. Note that if students substitute a course, then this is no longer a statewide agreement and some of the guarantees are only for the receiving institution that agreed to the substitution. **Any additional courses taken in the discipline covered by this agreement might not count toward the requirements of the major at the receiving institution.** Students can avoid this problem by taking no more courses in the discipline beyond those identified in the prescribed curriculum. STUDENTS SHOULD CONSULT THE PROGRAM ADVISOR AT THE RECEIVING INSTITUTION FOR GUIDANCE. Any advisement from an academic advisor should be obtained IN WRITING.

8. *Students seeking K-12 teacher licensure may not use this agreement because teacher preparation programs have different requirements for educator licensure.*

    * Aims Community College does not currently offer CSC 165/2065 or CSC 225/2025. Aims students should talk to their academic advisor about cooperative registration agreement options with CSU and UNC.
    ** For both the University of Colorado Boulder and the University of Colorado Denver, this agreement applies only to the Bachelor of Arts degree in Computer Science. Students who are interested in the Bachelor of Science degree in Computer Science should contact a program advisor at CU Boulder or CU Denver as early as possible.

Addendum to Agreement

Students who do not complete an AA/AS degree can use the prescribed curriculum in a statewide transfer articulation agreement as a common advising guide for transfer to all public institutions that offer the designated bachelor's degree program.
Please note the following:

1. Students are guaranteed application of general education courses completed with a C- or higher in the prescribed curriculum in this agreement up to the established maximum in each GT Pathways content area.

2. Except in special cases (e.g., the partial completion of a required sequence of courses or variation in the number of credit hours institutions award for course equivalents), students can expect that courses specified within the prescribed curriculum in this agreement, successfully completed with a C- or higher, will fulfill the relevant course requirements in the designated major.

3. Receiving institutions will evaluate all courses other than those specified in this agreement on a course-by-course basis.

Students transferring without a completed AA/AS degree must consult with the Office of Admissions at the institution to which they are transferring to review the issues identified above, and to make sure they meet all admission and application requirements at the receiving institution, including the submission of all required documentation by stated deadlines.

COMPUTER SCIENCE

This agreement will be reviewed by disciplinary faculty no less frequently than every five years. *The agreement will remain in force until such time as it is formally modified or terminated.*

The Department of Higher Education – in consultation with the General Education Council – may make minor technical changes to this agreement on behalf of participating institutions. The most current version of the agreement can be found on the CDHE website. Institutions that wish to join or withdraw from this agreement should consult the Division of Academic Affairs at the Colorado Department of Higher Education. Terms and processes are outlined in the Commission's policy on Statewide Transfer and GT Pathways, available at the CDHE website.

A paper or hard copy of this document may not be the most current version of the agreement—check the website of the Colorado Department of Higher Education for the most current version.

Signatures from institutional/system Chief Academic Officers for all participating institutions, as listed on the cover page, have signed this agreement. Signatures of Chief Academic Officers, who possess or have been delegated authority to enter into this agreement on behalf of their institution or institutions (in some cases by the institutional or system governing board), are on file in the Division of Academic Affairs at the Colorado Department of Higher Education.

COMPUTER SCIENCE

**Prepared by the Colorado Department of Higher Education
under the Executive Leadership of Dr. Angie Paccione.**

October 2020

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In partnership with Colorado Institutions of Higher Education

HISTORY OF REVISIONS TO AGREEMENT:

- 2020-05 – Approved by CCHE.
- 2020-09 – Technical correction to Prescribed Curriculum: Natural & Physical Sciences. PHY 111 and PHY 112 were listed instead of PHY 211 and 212.
- 2021-06 – Participating institutions revised: updated name for Otero College and Trinidad State College
- 2022-03 – Effective Summer 2022, all CCCS course numbers are 4-digits; updated prescribed curriculum to reflect both original 3-digit and new 4-digit course numbers.
- 2022-08 – Participating institutions revised: updated name for Pikes Peak State College.
- 2023-03 – Technical correction to Prescribed Curriculum: CSC 165/2065 was incorrectly listed as CSC 165/1065.
- 2023-07 – Revision made to Guarantee section. Paragraph 4, note regarding "students transferring to a University of Colorado institution (Boulder, Colorado Springs, Denver) must satisfy the CU System's MAPS (Minimum Academic Preparation Standards) requirement", has been removed. Effective Summer 2023.
- 2024-03 – Revision to Prescribed Curriculum: footnote added to CSC 160/1060 Computer Science I.
- 2024-07 – Three revisions made to participating institutions: Colorado School of Mines removed, effective Fall 2024 – transfer students to CSM are advised to use the Associate of Engineering Science, which eliminated extra courses that are not required at CSM; updated Adams State University program offering from B.S. Mathematical Science, Computer Science emphasis to B.S. Computer Science, effective Fall 2024 – ASU now requires CSC 2065 Discrete Structures and MAT 2540 Linear Algebra; updated the University of Northern Colorado program offering from B.S. Mathematics/Applied Math emphasis to B.S. Computer Science, effective Fall 2024 – UNC now requires MAT 2540 Linear Algebra. Revision made to Prescribed Curriculum: institutional updates made for the University of Colorado Denver.
- 2024-08 – Participating institutions revised: removed Otero College, effective Fall 2024. Students from OC who declared this program prior to the effective date will be allowed to complete.