APPLIED COMPUTER SCIENCE - POST-BACCALAUREATE BACHELOR OF SCIENCE (BSACS)

The post-baccalaureate degree in applied computer science is an *online-only* degree for professionals with a prior bachelor's degree who would benefit from computing but who do not have the prerequisite courses needed to pursue graduate studies. The goal of the program is to prepare students with diverse academic backgrounds to enter the computer science field.

Students who do not have a previous bachelor's degree from an accredited university or college should apply to one of the on-campus programs: the Computer Science - Bachelor of Arts (BA) (https://catalog.colorado.edu/undergraduate/colleges-schools/engineering-applied-science/programs-study/computer-science/computer-science-bachelor-arts-ba/) or the Computer Science - Bachelor of Science (BS) (https://catalog.colorado.edu/undergraduate/colleges-schools/engineering-applied-science/programs-study/computer-science/computer-science-bachelor-science-bs/). Only the latter degree program is accredited by the Computing Accreditation Commission of ABET (http://www.abet.org).

The post-baccalaureate degree in applied computer science consists of 45 credit hours of computer science courses. Students can start any term—spring, summer or fall—and can study from anywhere in the world with an internet connection at any time of day.

For more information, visit the department's CS Online website (https://www.colorado.edu/cs/cs-online/).

Course code for this program is CSPB.

Requirements

Admission Requirements

Prospective students must meet **all** of the following requirements:

- Have a four-year bachelor's degree from an accredited university.
- Have a minimum accumulated GPA of 2.75 in their existing bachelor's degree (applicants with significant life experience but a lower GPA will still be considered).
- Meet the math requirements.
- International students: Meet a minimum standard of English proficiency.

As part of the admissions process, students must:

- Complete an admissions application and pay the $50 application fee ($70 for international students).
- Provide a personal statement of 200-1000 words explaining why they are interested in the applied computer science degree, reflecting on the personal strengths (e.g., intellectual passion, academic abilities, disposition to work with professional colleagues) and life experiences that will enable them to succeed in the program.
- Provide two (2) letters of recommendation. References should be able to provide information regarding the applicant's ability to succeed in the program. References from relatives and/or friends will not be accepted.
- Submit all official transcripts directly to CU Boulder from the issuing institution. Transcripts can be sent to transcripts@colorado.edu or mailed to the Office of Admissions (http://www.colorado.edu/admissions/connect/).

Note: Meeting the minimum admissions requirements does not guarantee admission.

Math Requirements

Students are required to have ***one*** of the following:

- Completion of AP Calculus or Calculus 1* with a minimum final grade of C-
- Successful completion of CLEP (https://clep.collegeboard.org/science-and-mathematics/calculus/) exam for Calculus (CLEP exam credit is granted for a score at or above the 67th percentile)
- Successful completion of the ALEKS Prep for Calculus with Limits course with a grade of 80% or more. For more information on how to enroll in the ALEKS course, prospective students should visit the Post-Baccalaureate Admissions webpage (https://www.colorado.edu/cs/apply/post-baccalaureate-admissions/).

***Note**: "Calculus for Business" courses **do not** meet the prerequisite. If you took a variation of this course, you will still need to take the ALEKS online course.

International Applicants

In addition to our general admission requirements, all international applicants are also required to meet a minimum standard of English proficiency. The TOEFL and IELTS are two different English language proficiency tests accepted by CU Boulder as proof of English proficiency. CU Boulder does not accept any other tests as proof of English proficiency. International applicants are required to demonstrate English proficiency with a passing TOEFL or IELTS score as set by the College of Engineering and Applied Science (http://www.colorado.edu/engineering/).

TOEFL/IELTS Recommended Minimum English Proficiency Scores

- TOEFL: 83
- IELTS: 6.5

Total scores must include a TOEFL writing subscore of 19 or higher or an IELTS writing subscore of 5.5 or higher. Scores may not be combined.

Minimum English Proficiency

- Applicants are evaluated based on their overall application.
- Applicants who have taken the TOEFL or IELTS exams but do not meet the recommended minimum scores will still be considered for the program.

Proof of English proficiency is required for all international student applicants unless:

- The student has completed at least two years of full-time academic study at a U.S. high school or at a high school in a country where English is the native language (i.e., Australia, U.K.) at the time you begin studies at CU Boulder
- The student has completed at least one year of full-time academic study at a U.S. college or university or at an institution in a country

where English is the native language (i.e., Australia, U.K.) at the time you begin studies at CU Boulder

- English is the student's native language

Sending TOEFL and IELTS Scores

Request that the testing agency submit your scores directly to the Office of Admissions. Scores must be received by the Office of Admissions no later than November 15 for spring applicants, March 27 for summer applicants, and June 15 for fall applicants. For more information on each exam, go to the TOEFL website (http://www.ets.org/toefl/) or the IELTS website (https://www.ielts.org/).

The CU Boulder school code for the TOEFL is 4841. IELTS does not have school codes. When requesting that your IELTS results to be sent to CU Boulder, have it sent to the following address:

Office of Admissions/International
University of Colorado Boulder
3100 Marine St Suite A122
65 UCB
Boulder, CO 80309-0065
USA

Returning to CU Boulder

Students who are rostered in the program but do not enroll in courses for three consecutive terms will have to reapply to the program.

Program Requirements

Current curricular requirements may be found on the department's Applied Computer Science BS Degree Requirements (https://www.colorado.edu/cs/cs-online/cs-online-future-students/cs-online-curriculum/) website.

Students must complete 26 credits of required computer science courses, as well as a minimum of 19 credits of elective computer science courses. Currently, the courses below are offered online, with additional courses to be added in the future.

Note: The course prefix used for post-baccalaureate courses is **CSPB**. However, please be aware these courses are equivalent to the corresponding **CSCI** courses.

Required Courses and Credits

Code	Title	Credit Hours
Required Courses		
CSPB 1300	Computer Science 1: Starting Computing	4
CSPB 2270	Computer Science 2: Data Structures	4
CSPB 2400	Computer Systems	4
CSPB 2824	Discrete Structures	3
CSPB 3104	Algorithms	4
CSPB 3155	Principles of Programming Languages	4
CSPB 3308	Software Development Methods and Tools	3
Elective Courses		
CSPB 1000	Computer Science as a Field of Work and Study	1
CSPB 2820	Linear Algebra with Computer Science Applications	3
CSPB 3022	Introduction to Data Science with Probability and Statistics	3
CSPB 3112	Professional Development in Computer Science	1-3
CSPB 3202	Introduction to Artificial Intelligence	3
CSPB 3287	Design and Analysis of Database Systems	3
CSPB 3302	Introduction to Robotics	3
CSPB 3403	Introduction to CyberSecurity for a Converged World	
CSPB 3702	Cognitive Science	3
CSPB 3753	Design and Analysis of Operating Systems	4
CSPB 4122	Information Visualization	3
CSPB 4253	Datacenter Scale Computing - Methods, Systems and Techniques	3
CSPB 4502	Data Mining	3
CSPB 4622	Machine Learning	3
CSPB 4830	Special Topics in Applied Computer Science	
CSPB 4900	Upper Division, Undergraduate Level Independent Study	

Program Residency and Transfer Credits

Students are required to complete a minimum of 45 credit hours of computer science courses in order to graduate. The residency requirement for the program is that at least 30 credit hours must be taken from CU Boulder courses in the program (online courses) after the student has matriculated in the program as an Applied Computer Science student.

Students who have taken on-campus computer science courses at CU Boulder can receive credit for a maximum of 15 credit hours before matriculating into the program. Due to the degree residency requirement transfer credit cannot be accepted after a student has begun the program.

Students who have taken computer science courses from other universities can transfer a maximum of 9 credit hours to the program assuming that the courses are equivalent to the courses in the program.

Courses that have been taken over 10 years ago may not be transferred to the program. These courses are evaluated on a case by case basis.

Plans of Study

Students may begin this program in the spring, summer or fall term and have the freedom to customize their pathway to completion.

The program recommends working students follow a 2–3 year plan. Post-baccalaureate students may petition to pursue an accelerated pathways. However, they require *significant* time commitments, and program approval. Once accepted into the program, students are encouraged to speak with their advisor to discuss options and whether an accelerated pathway is right for them.

Visit the Post-Baccalaureate website (https://www.colorado.edu/cs/cs-online/cs-online-future-students/pathways-completion/) to learn more about pathways to completion.

Learning Outcomes

Program Educational Objectives

The post-baccalaureate BS program aims to produce alumni that, within three to five years after graduation:

- Are prepared to be valued individual contributors in a software-oriented organization, to be programmers and designers in an entrepreneurial pursuit, to lead small projects and generally begin preparation for a management career, or to succeed in rigorous postgraduate programs.
- Are able to focus their careers on pure computer science technology or to bring computer science expertise to a companion discipline.
- Are prepared, where appropriate, to specialize in a broad spectrum of computer science sub-disciplines, ranging across formal computer science (e.g., computational science, bioinformatics and theory), cognitive science (e.g., human/machine learning, human-computer interaction, collaborative work and human language technologies) and core computing (e.g., systems, networks and software engineering).

Student Outcomes

The post-baccalaureate BS degree program has as its primary educational outcome the production of students who have strong skills in computing and information technology that can be applied within a variety of business or research contexts, skills that allow these students to achieve rewarding careers in a variety of disciplines.

To achieve this outcome, the post-baccalaureate BS degree program aims to produce students who, upon graduation, are expected to be able to:

- Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
- Design, implement and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
- Communicate effectively in a variety of professional contexts.
- Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
- Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
- Apply computer science theory and software development fundamentals to produce computing-based solutions.

Post-baccalaureate Accelerated Master's Degree Program(s)

The post-baccalaureate–accelerated master's (PBAM) degree program options offer currently enrolled CU Boulder undergraduate students the opportunity to receive a bachelor's and master's degree in a shorter period of time. Students receive the post-bacc degree first, but begin taking graduate coursework as undergraduates (typically two to three semesters before graduation). Because some courses are allowed to double count for both the bachelor's and the master's degrees, students receive a master's degree in less time and at a lower cost than if they were to enroll in a stand-alone master's degree program after completion of their baccalaureate degree. Post-bacc students should discuss the requirements of the program carefully with their advisor, as there are both financial and relocation impacts to being accepted to the PBAM program.

The following PBAM programs are available with the BS in Applied Computer Science:

- BS in Applied Computer Science, MS in Computational Linguistics, Analytics, Search and Informatics
- BS in Applied Computer Science, MS in Computer Science
- BS in Applied Computer Science, MS in Data Science
- BS in Applied Computer Science, MS in Network Engineering

Admissions Requirements

BS in Applied Computer Science, MS in Computational Linguistics, Analytics, Search and Informatics

- Have a cumulative GPA of 3.50 or higher.
- Have completed all prerequisite courses with grades of B or better: CSPB 1300, CSPB 2270, CSPB 3104 (or CSPB 3022), LING 2000, CSCI 3832/CSCI 5832 (or CSPB 3202 or CSCI 4622) and one of the following during the semester they apply: LING 5430, LING 5420 or LING 5030.
- Have completed at least 15 credits in CSPB courses at CU Boulder.
- Provide two letters of reference, one written by the course instructor of the LING 5XXX course they are taking during the semester they apply, the other by the instructor from an upper division course in Computer Science. Letters should be sent directly to the CLASIC Program Coordinator.

BS in Applied Computer Science, MS in Computer Science

In order to gain admission to the PBAM program named above, a student must meet the following criteria:

- Have a cumulative GPA of 3.50 or higher.
- Have completed all prerequisite courses with grades of B or better: CSPB 1300, CSPB 2270, CSPB 2400, CSPB 3104 and CSPB 3155 (or CSCI 3753)
- Students who do not meet the first two criteria, must have one letter of reference from a faculty member or your undergraduate academic advisor outlining why they should be considered. The letter-writer should send their letter directly to gradadms@cs.colorado.edu.
- Have three semesters remaining in the bachelor's degree program.
- Students who are interested in applying to the **research-based MS option**, must provide a letter of support from the faculty with whom they wish to do their research. (Upload that letter with the department application.)
- Graduate work is expected to be completed on the Boulder campus.

BS in Applied Computer Science, MS in Data Science

In order to gain admission to the PBAM program named above, a student must meet the following criteria:

- Have a cumulative GPA of 3.50 or higher.
- Have completed all prerequisite courses with grades of B or better: CSPB 1300, CSPB 2270, CSPB 2400, CSPB 3022 and CSPB 3308.
- Have at least three semesters remaining in the bachelor's degree program
- Graduate work is expected to be completed on the Boulder campus.

BS in Applied Computer Science, MS in Network Engineering

In order to gain admission to the PBAM program named above, a student must meet the following criteria:

- Have a cumulative GPA of 3.300 or higher
- Have completed the following prerequisite courses with a B or better: CSPB 1300, CSPB 2270, CSPB 2400, CSPB 3308 and CSPB 3753. (If a student has transfer credit for one of the following courses, or has taken a commonly accepted course substitution for one of the above courses, their grade in that alternate course can be used to determine their eligibility for this BAM program.)
- Students who do not meet the first two criteria, must have one letter of reference from a faculty member or their undergraduate academic advisor outlining why they should be considered. The letter-writer should send their letter directly to: neteng@colorado.edu.
- Have at least three semesters remaining in the bachelor's degree program.
- Graduate work is expected to be completed on the Boulder campus.

Program Requirements

Students may take up to and including 12 hours while in the undergraduate program that can later be used toward the master's degree. However, only 6 credits may be double-counted toward the post-baccalaureate degree and the master's degree.

Students must maintain a 3.000 cumulative GPA once accepted to the PBAM program.

Students must apply to graduate with the post-baccalaureate degree, and apply to continue with the master's degree, early in the semester in which the undergraduate requirements will be completed.

Please see the computer science accelerated master's (https://www.colorado.edu/cs/academics/undergraduate-programs/accelerated-masters-programs/computer-science-accelerated-masters/) webpage for more information.