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) (catalog.colorado.edu/undergraduate/colleges-schools/arts-sciences/programs-study/computer-science/computer-science-bachelor-arts-ba) offered through the College of Arts & Sciences or the Computer Science - Bachelor of Science (BS) (catalog.colorado.edu/undergraduate/colleges-schools/engineering-applied-science/programs-study/computer-science/computer-science-bachelor-science-bs) offered through the College of Engineering & Applied Science. 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.

Course code for this program is CSPB.

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

Requirements

Admission Requirements

Prospective students must meet 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:

- AP Calculus or Calculus 1 or 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) or successful completion of the ALEKS Prep for Calculus with Limits course with a grade of 80% or more.
- To take the self-paced ALEKS Prep for Calculus with Limits course, applicants should go to the ALEKS (https://www.aleks.com) website and sign up for the course using the class code: JML34-K3NR1. Applicants will be required to purchase an access code to take the course. Course results will be verified by post-baccalaureate program staff as part of the admissions process.

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 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 enrolled in the program but do not register for 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.

Student must complete 26 credits of required computer science courses, as well as 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 course.

### Required Courses and Credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>CSPB 1300</td>
<td>Computer Science 1: Starting Computing</td>
<td>4</td>
</tr>
<tr>
<td>CSPB 2270</td>
<td>Computer Science 2: Data Structures</td>
<td>4</td>
</tr>
<tr>
<td>CSPB 2400</td>
<td>Computer Systems</td>
<td>4</td>
</tr>
<tr>
<td>CSPB 2824</td>
<td>Discrete Structures</td>
<td>3</td>
</tr>
<tr>
<td>CSPB 3104</td>
<td>Algorithms</td>
<td>4</td>
</tr>
<tr>
<td>CSPB 3155</td>
<td>Principles of Programming Languages</td>
<td>4</td>
</tr>
<tr>
<td>CSPB 3308</td>
<td>Software Development Methods and Tools</td>
<td>3</td>
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</tbody>
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### Elective Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSPB 3022</td>
<td>Introduction to Data Science with Probability and Statistics</td>
<td>3</td>
</tr>
<tr>
<td>CSPB 3287</td>
<td>Design and Analysis of Data Systems</td>
<td>3</td>
</tr>
<tr>
<td>CSPB 3702</td>
<td>Cognitive Science</td>
<td>3</td>
</tr>
<tr>
<td>CSPB 3753</td>
<td>Design and Analysis of Operating Systems</td>
<td>4</td>
</tr>
<tr>
<td>CSPB 4122</td>
<td>Information Visualization</td>
<td>3</td>
</tr>
<tr>
<td>CSPB 4502</td>
<td>Data Mining</td>
<td>3</td>
</tr>
</tbody>
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Total Credit Hours 45

### Program Residency and Transfer Credits

Students are required to complete 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.

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. More accelerated plans are available, but require a significant time commitment and program approval.

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

### 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:

- Apply knowledge of computing and mathematics in a variety of application contexts.
- Analyze a problem and identify/define the computing requirements appropriate to its solution.
- Design, implement and evaluate a computer-based system, process, component or program to meet desired needs.
• Function effectively on teams to accomplish shared design, evaluation or implementation goals.
• Understand professional, ethical, legal, security and social issues/responsibilities related to the computing profession.
• Communicate effectively about computing topics with a range of audiences.
• Analyze impacts of computing on individuals, organizations and society.
• Engage in continuing professional development.
• Use current techniques, skills and tools necessary for computing practice.
• Apply mathematical foundations, algorithmic principles and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the trade-offs involved in design choices.
• Apply design and development principles in the construction of software systems of varying complexity.