

# Support K-12 Computer Science Education in Connecticut

Computer science drives job growth and innovation throughout our economy and society. Computing occupations are the **number 1 source of all new wages in the U.S.** and make up over half of all projected new jobs in STEM fields, making Computer Science one of the most in-demand college degrees. And computing is used all around us and in virtually every field. It's foundational knowledge that all students need. But computer science is marginalized throughout education. Only 45% of U.S. high schools teach any computer science courses and only 11% of bachelor's degrees are in Computer Science. We need to improve access for all students, including groups who have traditionally been underrepresented.



**In Connecticut, there are currently 7,445 open computing jobs with an average salary of \$100,358.**

**Yet, there were only 564 graduates in computer science in 2018 and only 67% of all public high schools teach a foundational course.**

## Computer science in Connecticut

- Only **3,445 exams were taken in AP Computer Science by high school students in** Connecticut in 2020 (1,335 took AP CS A and 2,110 took AP CSP).
- Only 28% were taken by female students (23% for AP CS A and 31% for AP CSP); only 325 exams were taken by Hispanic/Latino/Latina students (102 took AP CS A and 223 took AP CSP); only 138 exams were taken by Black/African American students (41 took AP CS A and 97 took AP CSP); only 10 exams were taken by Native American/Alaskan students (1 took AP CS A and 9 took AP CSP); only 2 exams were taken by Native Hawaiian/Pacific Islander students (1 took AP CS A and 1 took AP CSP).
- Only **139 schools** in CT (51% of CT schools with AP programs) offered an AP Computer Science course in 2019-2020 (31% offered AP CS A and 38% offered AP CSP), which is 4 more than the previous year. There are fewer AP exams taken in computer science than in any other STEM subject area.
- Teacher preparation programs in Connecticut did not graduate a single new teacher prepared to teach computer science in 2018.
- According to a representative survey from Google/Gallup, school administrators in CT support expanding computer science education opportunities: 66% of principals surveyed think CS is just as or more important than required core classes. And their biggest barrier to offering computer science is the lack of funds for hiring and training teachers.

## What can you do to support K-12 CS education in Connecticut?

- Send a letter:
  - To your school/district asking them to expand computer science offerings at every grade level: [www.code.org/promote/letter](http://www.code.org/promote/letter)
  - To your elected officials asking them to support computer science education policy in Connecticut: [www.voterve.net/Code/campaigns/58463/respond](http://www.voterve.net/Code/campaigns/58463/respond)
- Find out if your school teaches computer science or submit information about your school's offerings at [www.code.org/yourschool](http://www.code.org/yourschool).

- Visit [www.code.org/educate/3rdparty](http://www.code.org/educate/3rdparty) to find out about courses and curriculum from a variety of providers, including Code.org.

## Code.org's impact in Connecticut

- In Connecticut, Code.org's curriculum is used in
  - 24% of elementary schools
  - 25% of middle schools
  - 15% of high schools
- There are 6,529 teacher accounts and 346,405 student accounts on Code.org in Connecticut.
- Of students in Connecticut using Code.org curriculum last school year,
  - 32% attend high needs schools
  - 11% are in rural schools
  - 46% are female students
  - 12% are Black/African American students
  - 22% are Hispanic/Latino/Latina students
  - 1% are Native American/Alaskan students
  - 1% are Native Hawaiian/Pacific Islander students
  - 40% are white students
  - 6% are Asian students
  - 5% are students who identify as two or more races
- Code.org, its regional partner(s) Sacred Heart University, and 9 facilitators have provided professional learning in Connecticut for
  - 933 teachers in CS Fundamentals (K-5)
  - 33 teachers in Exploring Computer Science or Computer Science Discoveries
  - 33 teachers in Computer Science Principles

## What can your state do to improve computer science education?

States and local school districts need to adopt a broad policy framework to provide all students with access to computer science. The following nine recommendations are a menu of best practices that states can choose from to support and expand computer science. Not all states will be in a position to adopt all of the policies. Read more about these 9 policy ideas at [https://code.org/files/Making\\_CS\\_Fundamental.pdf](https://code.org/files/Making_CS_Fundamental.pdf) and see our rubric for describing state policies at <http://bit.ly/9policiesrubric>.

**State Plan** - The Connecticut State Board of Education adopted a computer science plan in 2020. The plan includes recommendations to reduce gaps in access to computer science courses for female students, students with high-need, and students from marginalized racial and ethnic groups underrepresented in computer science. The plan also targets diverse representation in teachers of computer science courses.

**K-12 Standards** - Connecticut adopted the CSTA K–12 Computer Science Standards in 2018. Standards within each grade band address concepts of equity, such as bias, accessible technology, and inclusivity.

**Funding** - Connecticut **does not yet** provide dedicated funding for rigorous computer science professional development and course support. Although funds may be available via broader programs, the state can strengthen its computer science programs by creating specific opportunities to bring computer science to school districts, such as matching fund programs.

**Certification** - In Connecticut, teachers with existing licensure can obtain the K–6 or 7–12 endorsement through academic coursework or passing the Praxis CS exam (approved in December 2019).

**Pre-Service Programs** - SB 957 (2019) required teacher preparation programs to include, as part of the curriculum for all preservice candidates, instruction in computer science that is grade-level and subject-area appropriate.

**Dedicated State Position** - The Connecticut Department of Education has a Computer Science Education Consultant.

**Require High Schools to Offer** - SB 957 (2019) added computer science to the list of subjects that public schools must teach, with implementation by the 2019–2020 school year.

**Count Towards Graduation** - Connecticut passed a permissive and encouraging policy for local boards of education to allow computer science courses aligned to the state computer science standards to count towards the nine STEM credits required for graduation (beginning

with the class of 2023).

□ **IHE Admission** - Connecticut **does not yet** allow computer science to count as a core admission requirement at institutions of higher education. Admission policies that do not include rigorous computer science courses as meeting a core entrance requirement, such as in mathematics or science, discourage students from taking such courses in secondary education. State leaders can work with institutions of higher education to ensure credit and articulation policies align with secondary school graduation requirements.

## Follow us!

Join our efforts to give every student in every school the opportunity to learn computer science. Learn more at [code.org](https://code.org), or follow us on [Facebook](#) and [Twitter](#).

Launched in 2013, Code.org® is a nonprofit dedicated to expanding access to computer science, and increasing participation by women and underrepresented youth. Our vision is that every student in every school should have the opportunity to learn computer science.

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### Who can you connect with locally to talk about K-12 CS education policy?

- You can reach Code.org's policy contact for your state, Amy Roberts, at [amy.roberts@code.org](mailto:amy.roberts@code.org).
- The Expanding Computing Education Pathways (ECEP) Alliance ([www.ecepalliance.org](http://www.ecepalliance.org)), an NSF funded Broadening Participation in Computing Alliance, seeks to increase the number and diversity of students in computing and computing-intensive degrees by promoting state-level computer science education. ECEP supports 22 states and the territory of Puerto Rico to develop effective and replicable interventions to broaden participation in computing and to create state-level infrastructure to foster equitable computing education policies. You can reach your ECEP point of contact Chinma Uche at [cuhe@ccec.org](mailto:cuhe@ccec.org) or Seth R Freeman at [sfreeman@ccc.commnet.edu](mailto:sfreeman@ccc.commnet.edu).

Data is from the Conference Board for job demand, the Bureau of Labor Statistics for state salary and national job projections data, the College Board for AP exam data, the National Center for Education Statistics for university graduate data, the Gallup and Google research study Education Trends in the State of Computer Science in U.S. K-12 Schools for parent demand, the 2018 Computer Science Access Report for schools that offer computer science, and Code.org for its own courses, professional learning programs, and participation data.