Support K-12 Computer Science Education in Montana

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.

Montana currently has 520 open computing jobs (2.1 times the average demand rate in Montana). The average salary for a computing occupation in MT is $68,188, which is significantly higher than the average salary in the state ($43,860). The existing open jobs alone represent a $35,457,947 opportunity in terms of annual salaries.

Montana had only 125 bachelor’s degrees in Computer Science in 2018; only 18% were female.

In Montana, only 45% of all public high schools teach a foundational computer science course.

Only 52 exams were taken in AP Computer Science by high school students in Montana in 2019 (16 took AP CS A and 36 took AP CSP).

Only 27% were female (13% for AP CS A and 33% for AP CSP); only 1 exam was taken by Hispanic or Latino students (1 took AP CS A and 0 took AP CSP); no exams were taken by Black students; no exams were taken by American Indian or Alaska Native students; no exams were taken by Native Hawaiian or Pacific Islander students.

Only 12 schools in MT (12% of MT schools with AP programs) offered an AP Computer Science course in 2018-2019 (1% offered AP CS A and 11% offered AP CSP), which is 6 more than the previous year.

Universities in Montana did not graduate a single new teacher prepared to teach computer science in 2017.

According to a representative survey from Google/Gallup, school administrators in MT support expanding computer science education opportunities: 57% of principals surveyed think CS is just as or more important than required core classes. And one of their biggest barriers 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 Montana?

- Send a letter:
  - To your school/district asking them to expand computer science offerings at every grade level: www.code.org/promote/letter
  - To your elected officials asking them to support computer science education policy in Montana:
    www.votervoice.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/ yourself.
- Visit www.code.org/educate/3rdparty to find out about courses and curriculum from a variety of providers, including Code.org.

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, Maggie Glennon, at maggie@code.org.

Code.org's impact in Montana

- In Montana, Code.org’s curriculum is used in
  - 21% of elementary schools
  - 12% of middle schools
  - 13% of high schools
- There are 2,034 teacher accounts and 70,438 student accounts on Code.org in Montana.
- Of students in Montana using Code.org curriculum last school year,
  - 25% attend high needs schools
  - 77% are in rural schools
  - 46% are female students
  - 27% are underrepresented minority students (Black/African American, Hispanic/Latino, American Indian, or Hawaiian)
- Code.org and 6 facilitators have provided professional learning in Montana for
  - 312 teachers in CS Fundamentals (K-5)
  - 31 teachers in Exploring Computer Science or Computer Science Discoveries
  - 27 teachers in Computer Science Principles

“Computer Science is a liberal art: it’s something that everybody should be exposed to and everyone should have a mastery of to some extent.”

— Steve Jobs

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 and see our rubric for describing state policies at http://bit.ly/9policiesrubric.

Montana has not yet created a state plan for K-12 computer science. A plan that articulates the goals for computer science, strategies for accomplishing the goals, and timelines for carrying out the strategies is important for making computer science a fundamental part of a state’s education system.

Montana is in the process of developing K-12 computer science standards.

Montana 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.

Montana has clear certification pathways for computer science teachers.

Montana has established programs at institutions of higher education to offer computer science to preservice teachers.

Montana does not yet have dedicated computer science positions in state or local education agencies. Creating a statewide computer science leadership position within the state education agency can help expand state-level implementation of computer science education initiatives. Similar positions at the local level could support districts’ expansion of course offerings and professional development.

Montana does not yet require that all secondary schools offer computer science. The state can support the expansion of computer science courses by adopting policies that require schools to offer a computer science course based on rigorous standards, with appropriate implementation timelines and allowing for remote and/or in-person courses.

Montana has passed policy that is permissive and encouraging for schools to allow computer science to count for a core graduation requirement, but it is not a requirement for schools. Find out how Montana allows computer science to count towards graduation at http://bit.ly/9policies.

Montana 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, 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 students of color. Our vision is that every student in every school should have the opportunity to learn computer science.

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.